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THE VEDIC MAGAZINE

AND

GURUKULA SAMACHAR.

Edited by Professor RAMA DEVA.

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वैदिक धर्म के अमूल्य ग्रन्थ।

[१] योग-साधन-माला।

(१) संध्योपासना। योग की रीति से संध्या करने की पद्धति। मूल्य १॥) डेढ़ रु०

(२) संध्या का अनुष्ठान। मूल्य ॥) आठ आने

(३) वैदिक-प्राण-विद्या। प्राणायामपूर्वार्ध। मूल्य १) एक रु०

(४) ब्रह्मचर्य। सचित्र। वीर्यरक्षण के उपाय। मूल्य १।) सवा रु०।

[२] उपनिषद्-ग्रन्थ-माला।

(१) "ईश" उपनिषद् की व्याख्या। मूल्य ॥=) चौदह आने।

(२) "केन" उपनिषद् की व्याख्या। मूल्य १।) सवा रु०।

[३] आगम-निबंध-माला।

(१) वैदिक-राज्य-पद्धति। मू०।-) पांच आने

(२) मानवी-आयुष्य। मूल्य ।) चार आने

(३) वैदिक सभ्यता। मूल्य ≡) तीन आने

(४) वैदिक-चिकित्सा-शास्त्र। मूल्य ।) चार आने।

(५) वैदिक स्वराज्य की महिमा। मूल्य ॥) आठ आने।

(६) वैदिक सर्पविद्या। मूल्य ॥) आठ आने

(७) मृत्यु को दूर करने का उपाय। मूल्य ॥) आठ आने।

(८) वेद में चरखा। मूल्य ॥) आठ आने

(९) शिवसंकल्प का विजय। मूल्य ।॥) बारह आने।

(१०) वैदिक धर्म की विशेषता। मूल्य ॥) आठ आने।

[४] स्वयं-शिक्षक-माला।

(१) वेद का स्वयं शिक्षक। प्रथम भाग। मूल्य १॥) डेढ रु०।

(२) वेद का स्वयंशिक्षक। द्वितीय भाग मूल्य १॥) डेढ रु०।

[५] देवता-परिचय-ग्रन्थ-माला।

(१) रुद्रदेवता का परिचय। मू०॥) आठआने

(२) ऋग्वेद में रुद्र देवता। मू०॥=) दसआने

(३) ३३देवताओंका विचार मू०≡) तीनआने

(४) देवता-विचार। मूल्य ≡) तीन आने।

[६] धर्म-शिक्षा के ग्रन्थ।

(१) बालकों की धर्म-शिक्षा। प्रथम भाग मूल्य -) एक आना।

(२) बालकों की धर्म-शिक्षा। द्वितीय भाग मूल्य =) दो आने।

(३) वैदिक-पाठ-माला। प्रथम पुस्तक। मूल्य ≡) तीन आने।

[७] यजुर्वेद का स्वाध्याय।

(१) यजु०अ० ३०। नरमेध। मू० १) एक रु०

(२) यजु०अ० ३२। एक ईश्वर उपासना। मूल्य ॥) आठ आने।

(३) यजु० अ० ३६। शांति का उपाय। मूल्य ॥) आठ आने।

[८] ब्राह्मण-बोध-माला।

(१) शतपथबोधामृत। मूल्य ।) चार आने

[७] वैदिक धर्म।

यह सचित्र मासिक पत्र वैदिक धर्म के तत्व ज्ञान का विचार और प्रचार कर रहा है। योग साधन विषयक लेख भी सब को करने योग्य सुगम रीति के साथ इसमें प्रसिद्ध होते हैं। वार्षिक मूल्य ३॥) साढे तीन रु० है। शीघ्र मगवाइये।

मन्त्री—स्वाध्याय मंडल, औंध (जि० सातारा)।

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THE VEDIC MAGAZINE

सर्वेषामेव दानानां ब्रह्म दानं विशिष्यते । (मनु०)

Of all gifts that of Divine knowledge is the highest and noblest.

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Ancient Indian Engineering Philosophy.

(By Rao Sahib K. V. Vaze I. C. E.)

CHAPTER XII.

PLASTERING, FIGURING AND PAINTING.

जंगमा वास्थावरा वा ये संति भुवनत्रये ।
तत्तत्स्वभावतस्तेषां करणं चित्रमुच्यते ॥
तच्चित्रं तु त्रिधा ज्ञेयं तस्यभेदोधुनोच्यते ।
सर्वांग दृश्य करणं चित्र मित्यभिधीयते ॥
भित्त्यादौलग्नभावेना प्यर्धं यत्र प्रदर्श्यते ।
तदर्धं चित्रमित्युक्तं; यत्त तेषां त्रिलेखनं ॥
चित्राभास मिति ख्यातं विलेख्यं तद्विदुर्बुधाः ॥
शिल्परत्नः ।

An image is a thing which represents immovable or immovable objects in their natural states. Images are of three classes. Statue **चित्र** is an image in which all the parts of the thing are shown on all their sides; an image, which, reclining against a wall etc., shows or models only one side of the thing, is called Fresco work **अर्ध चित्र**, and an image, which shows only the appearance of the thing from a certain position is called **चित्राभास** or **विलेख्य**. Picture.

रसचित्रं तथा धूली चित्रं चित्र मितित्रिधा ॥
नानाचूर्णैः स्थंडिलादौ यद्रम्यं लेखनं भवेत् ॥
धूलिचित्रमितिख्यातं चित्रकारैः पुरातनैः ॥
सादृश्यं दृश्यते यत्तु भित्तौ दर्पण बिंबवत् ॥
तच्चित्र मिति विख्यातं नालमाकारमातृकं ॥
शृंगारादि रसो यत्र दर्शना दवगम्यते ॥
रसचित्र मितिख्यातं वर्णलेखमिदं तथा॥शिल्परत्न

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Pictures are again divided into three classes. A picture which is composed of dry powders of various colours spread on a plain floor or water surface is called धूलीचित्र (representation by powders). A picture which represents things only like a reflection from a mirror showing the form and surroundings is called चित्र or Landscape. A picture which represents the emotions in the minds of human beings is called रसचित्र or वर्ण लेख Emotional picture or drawing.

ऋजुप्यात्संमुखं स्थान मन्यदर्धर्जुपंजकम् ॥
तृतीयं साचिकं प्रोक्तं तुर्यं त्वर्धाक्षिपंजकम् ॥
पंचमं भित्तिकं प्राहुस्तज्ज्ञाः पार्श्वगतं च तत् ॥
पंच स्थानानि मुख्यानि कथितानीह संज्ञया ॥
ऋज्वादि परत स्तत्पादिवरं द्विविधं भवेत् ॥
एवं नवानि स्थानानि भवंति चित्र लेखने ॥
लिखेच्चित्र गतं भावं तथा व्यापार मेव च॥शिल्परत्न

A picture which shows only the front portion of a thing is called ऋजु or Elevation or front view. A picture in which two sides are represented equally inclined to the front line is called अर्धर्जु half inclined or Isometric view. A picture which represents things as they actually appear from a certain position is called साचिक or Perspective view. A picture which represents half the body such as one eye etc. is called अर्धाक्षि or Side view. A picture which shows only the back is called भित्तिक or Back view. In this way pictures represent five views. All views except the front elevation are of two sorts viz the right and left for the Isometric, अर्धर्जु Perspective साचिक and side views, अर्धाक्षि and back and bottom for the भित्तिक called Back and Ground views. Thus for each object there are nine sorts of pictures or views. In a complete picture not only the actions of the body but the emotions in the mind should also be depicted.

ऋजुस्थानं मुखं यत्र तत्रान्यत्कंठतो प्यधः ॥
तत्रापि कट्यधस्त्वन्य दिति संकर पद्धतिः ॥
एवं स्मरन्नो चितस्थानं मनसा निश्चित्य बुद्धिमान ॥
आलिखे द्योन्य लेखिन्या स्मृत्वा स्मृत्वा पुनःपुनः ॥
शिल्परत्न ॥

Sometimes one part of the body is depicted in one view, and the other parts in other views for example the face is shown in front elevation, the portion between the neck and the waist is shown in perspective and the portion below waist is shown in side elevation; such a picture is called a mixed view. A painter should thus settle in his mind what or how he wants to represent and then paint it with suitable brushes recollecting his ideas as often as he can, so that the picture may be an exact representation of something either actual or ideal.

चित्रं वाप्यथ चित्रार्धं मृदा वा सुधयापिवा ॥
दारुणा शिलया वाथ लोहै रिष्टकयापि वा ॥
तत्तद्द्रव्यैः प्रकुर्वीत यथा दृष्टं यथा श्रुतं ॥
यथायुक्ति यथा शोभं नाना द्रव्यैश्चभूषयेत् ॥
चित्रशिल्प ॥

A statue or fresco work may be made of earth, lime, wood, stone, metal or bricks. These are to be prepared according to the image one has seen or heard of, or according to one's ideas of beauty and one should decorate the same with various materials in the best way one can. We shall describe the various processes of doing this in the portion

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dealing with मूर्ति Images under देवालय Temples in नगररचना Town planning. In this chapter we shall deal only with paintings etc. in ordinary buildings.

चित्राभासं पुनस्तेषा मेकमार्गं समाश्रयेत् ॥
सुधाभिः स्निग्धभित्त्यादौ युक्तवर्णं विलेखयेत् ॥
संग्रामं मरणं दुःखं देवासुर कथास्वपि ॥
नग्नं तपस्विलीलां च न कुर्यान्मानुषालये ॥
स्वागममाखिलवेदादि पुराणोक्त कथान्वितम् ॥
तत्र तत्रोचिताकार रसभावक्रियान्वितम् ॥
नानावर्णान्वितं रम्यं न न्यूनं नाधिकं लिखेत् ॥
चित्रं विचित्र फलदं भर्तुः कर्तुश्च तोषदम् ॥
चित्रांशल्प ॥

In pictures one has to deal with only one surface and therefore they are to be painted with various paints on smooth walls in suitable colours. In human residences one should not paint battles, deaths, and sorrows, even from the stories of gods and demons, or naked bodies, penances and austerities. One may paint stories from one's history and mythology, with suitable bodily actions and forms and mental feelings and emotions. The picture should be painted in various colours, and should be attractive. It should depict neither more nor less than the actual story and it should please both the painter and the owner by its varied effect on the mind of the observer.

तत्रादौ सुधया पूर्वमुक्तयातत्क्रमेण च ॥
लिपेत्कुड्यं तथा भित्तिश्चित्र तदनुलेपयेत् ॥
अथ कुड्यादकं सम्यक् संशोध्यसमतांनयेत् ॥
पुनस्तद् गुडतोयेन सिक्त्वा नीत्वा दिनाल्पकं ॥
नालिकेरत्वचामग्रैः सुसूक्ष्मैः शिमली कृतैः ॥
पश्चात्तत्र सुधांपिष्टं तयादर्व्या विलेपयेत् ॥
दर्व्याकार विशालादि सर्व मौचित्यभेदतः ॥
शिल्परत्न ॥

In the first place the wall or partition should be plastered smooth with lime as already noted (in plastering of terraces) and then the picture should be painted on it. The surface of the wall should be carefully examined and brought to one plane and then it should be sprinkled with a solution of गुड़ jagari and allowed to dry for a few days The carpels or bark of the cocoanut should be very carefully polished and made into trowels. With these trowels the wall should be carefully and evenly fine-coated. The sizes and shapes of the trowels should be made to suit the area to be plastered.

लौही दारुमयी वाथश्लक्ष्ण पृष्ठा भवेदिह ॥
तद्वर्वी पृष्ठभागेन निम्नोन्नत विवर्जितम् ॥
लित्वा पिष्ट सुधांसम्यग्मंदं मंदं पुनः क्रमाद् ॥
नालिकेर त्वचा लिप्य शुद्ध तोयसमन्वितं ॥
शुष्के तस्मिन्वर्णलेपं कुर्य्याच्चित्रार्थ मेवच ॥
फलकादौ तक्षणेन स्निग्धवर्ण विलेपयेत् ॥
सुधालेपो न कर्तव्यश्चित्रार्थं फलकादिषु ॥
सुधावलिप्त कुड्यादौ धवलं वर्ण मालिखेत् ॥
शंख शुक्त्यादिकं किंवा सित मृत्तत्र चूर्णयेत् ॥
शिल्परत्न ॥

A trowel may be made of metal or wood, but it should be very smooth and even, and with this trowel the wall should be made even, with fine lime, frequently but lightly spread in small quantities at a time. While rubbing with these trowels pure water should be sprinkled on the wall with coir brushes. When this finely plastered even surface is dry the picture is to be drawn on it. Planks of wood &c. need not be plastered, they should be made smooth only by plaining and rubbing hard. When a plank, wall or cloth on which a picture is to be drawn is made smooth and even, it should be painted

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white. The white paint is prepared from the slaked lime of shells or white earth.

दग्ध्वा शंखादिकं काष्ठैश्चूर्णितंवेधितं सुधा ।
चूर्णभाग चतुर्थांशं मुद्गकाथलनैः सह ॥
गुड़तोयेन संसिंचेत्तच्चूर्णं वालुकान्वितं ।
माषयूषप्रमाणं वा सुधातुर्यंशिमानतः ॥
कालाग्निपक्वकदलीफलपिष्टं च योजयेत् ।
तत्पिष्टस्य प्रमाणं च सुधावेदांशकं स्मृतम् ।
द्रोण्यां क्षिप्त्वा थ संमर्द्य गते मासत्रयेपुनः ॥
पेषयेद्दृषदिक्षिप्त्वा दृषदा गुडवारिणा ।
नवनीतमिवायाति यावत्तावत्सुपेषयेत् ॥
शिल्परत्न ।

Shells should be well burnt with fire wood, should be slaked and sieved into very fine dust. This dust should be mixed with one fourth part of the decoction of मुद्ग (मूंग), and an equal part of very fine sand and with solution of गुड़ jagari. Instead of मुद्ग decoction that of माष may be used in the same proportion. Floor of ripe plantain fruit may be added in the proportion of four parts of lime to one of plantain. All these should be put in a large mortar and well mixed with a pestle and allowed o stand over for three months. After his the mixture should be round between two stones with the solution of गुड़ jagari until it becomes as soft and smooth as butter.

श्याम धातून् यवमात्रं शुद्धतोयेन पेषयेत् ।
पुनः कपित्थनिर्यासतोयैः संमिश्रशोषयेत् ॥
एवमेव समानीयरक्त धातूनपिक्रमात् ।
निर्मलत्वे समुत्पन्ने शोषयेदेवमेवहि ॥ शिल्परत्न

Blue metals should be ground fine with (नीललोह Manganese ?) water and should be mixed with the juice of कपित्थ wood-apple and dried. Red metals (रक्तलोह cobalt) should also be washed clean, mixed with juice and dried.

गैरिकं तुशिलापृष्ठे दिनमेकं सुपेषयेत् ।
दिनार्धं पेषयेत्तद्वत् सिंदूरं जलमाश्रितम् ॥
दिनपंचकमात्रंतु पुनस्तोयविमिश्रकम् ॥
दिनमेकं पेषायित्वा सम्यक् पात्रेषु संग्रहेत् ॥
एतेषां निंबनिर्यास तोयं संयोज्य युक्तितः ॥
संमर्द्य लेपालेखन प्रांकयाश्च समाचरेत् ॥

Red earth should be ground with water for one day and (red lead litharge for half a day. These red colour should then be allowed to stand in water for five days and then again ground for one day. Decoction of Neem bark &c. should be mixed with these and allowed to dry.

अथ दारून् पीतवर्णान् गिरिनद्यादि संभवान् ॥
आदाय शुद्धतोयेन सक्षाल्यादौ विचूर्णयेत् ॥
मंदं किंचित् शिला पृष्ठे पेषायित्वा विलोडयच ।
शुद्धतोये महापात्रे मुहूर्त प्रांतपालयेत् ॥
नदूध्वांश सारताय अधः पंक विवर्जितम् ॥
पात्रांतरे सुनिक्षिप्य पुनः कुर्याद मुंविधम् ॥
एवं पुनः पुनः कृत्वा याव न्नमलता भवेत् ॥
तत्सार नवमृत्तुभ्यां घृताभ्यां स्थाप्य शोषयेत्
ग्रीष्मातपेषु विधवद् भूयोभूयो महामतः ॥
आलोड्य शुद्धतोयेषु शोषयत् शुद्धि मिच्छुकः ॥
सितवर्ण रक्तवर्ण पीतवर्ण च कज्जलम् ॥
एतान शुद्धवर्णान श्यामवर्ण तथैव च ॥

One should bring yellow wood, o stone or earth from the places where is to be had. These should be first we washed with water and pounded fine This dust should be solved or mixe with water and the water allowed t settle for about one hour. The clea water on the top should be drained o

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the mud at the bottom. The deposit should again be washed and allowed to settle similarly. In this way it should be washed until it is quite clean. This clean dust should then be dried in a new china pot (an earthen pot in which ghee is stored) घृताची in the hot sun. The same should again be washed and dried. Red and other colours should also be similarly prepared. The principal paints required are five viz (1)white (2) yellow, (3) red, (4) black and (5) blue and of these white, yellow, red and blue are to be obtained in the way noted above and the black as noted below.

अथतैलं समासिच्य वर्धमानेऽच्छवर्तिकां ।
विन्यस्य प्रज्वलेद्दीपं घटमादाय मृण्मयम् ।
शुष्क गोमय चूर्णेन संमृज्योदरमस्यच ।
तद्दीपो परि दीपस्य संमुखं विन्यसेद्बुधः ॥
तत्र दीपशिखोद्भूतं कज्जलं तद्घटोदरे ।
आलग्नं सम्यगादाय मृद्घटादौ विलेपयेत् ॥
मर्दयेच्च स्वहस्तेन भूयोद्वर्त्य पुनस्तथा ।
युद्धांबुमिश्रं संमर्द्य बहुशः शोषये त्पुनः ॥ शिल्परत्न

In an earthen pot good oil should be put in with a clean wick which should be lighted. Another earthen vessel should be taken and cleaned inside with the powder of dry cowdung and then put over the wick flame with the cavity towards the flame. The lamp-black from the wick will thus be collected inside this pot. It should be scraped into another pot, crushed to powder, washed with clean water and dried.

लेखनी त्रिविधाज्ञेया स्थूला सूक्ष्मा च मध्यमा ।
तद्दण्डं मुष्टिमात्रं वा विष्कंभं षड्यवं स्मृतं ॥
स्थूलायां वत्स कर्णोत्थं अजोदरभवं परे ।
चिक्कोडपुच्छजं सूक्ष्मायामरोमं तृणाग्रकं ॥
तंतु नालाक्षया वाथ दंडाग्र कृतशंकुषु ।
बध्नातु लेखनीः सम्यक् प्रतिवर्णं त्रिधा त्रिकाः ॥
प्रत्येकं नवधा चैवं प्रतिवर्णस्य लेखनीः ॥ शिल्परत्न

Brushes are of three sorts viz large, small and medium. Their handles should be one fourth to half a hand long with six ends यव in the circumference. In thelarge brush the hair from the ears of calves should be used, in the medium brushes those from the stomach of the goat should be used and in fine brushes the hair from the tails of a squirrel or ends of grass should be used. These hair etc. should be tied firmly in notches made at the ends of the handles. There should be three sizes in each ear and thus for each paint there should be nine brushes at least.

कपित्थनिंब निर्यासै स्तोये रालोड्य बुद्धिमान् ।
मंदमालेपयेद् भित्तौ फलके वा यथा रुचि ॥
नालीकेरत्वचावाथ केतकी सूत्रतो पिवा ।
यथासुस्थिरतां याति तदा वृत्त्याविलेपयेत् ॥
एवं धवलितेभित्तौ दर्पणोदरसंनिभे ।
फलकादौ पटादौ वा चित्र लेखनमारभेत् ॥
शिल्परत्न

The paints should be mixed with the juice of कापत्थ wood-apples निंब neem barks and then applied lightly to the wall with brushes made of coir or hemp in such a way that they adhere well. In this way when a wall, plank or cloth is made white like the surface (inside) of a plate glass, the figuring of the picture should begin.

देवान्वा मनुजान्वापि मृगान् नागान् विहंगमान् ॥
लता वृक्षा।दकान्वापि नगान्वा सागरानाप ॥
श्रोत्राभ्यां वाथनेत्राभ्यां मनसा वा सुनिश्चितान् ॥
स्वस्थचित्तः सुखासीनः स्मृत्वास्मृत्वा पुनःपुनः
आलिखेत्किट्टलेखिन्या सुदिने धूलि वर्जिते ॥

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यत्र लेखागता वामं तत्र तां नववाससा ॥
संमार्ज्य सम्यगालिख्य तत्तदाकारमुन्नयेत् ॥
अथ मध्यमलेखिन्या पीतवर्ण रसेन च ॥
किट्टलेखा बहिर्भागे लेखयेदच्छमंबरम् ॥
माजयेत्किट्टलेखांतां पुनः सुव्यक्त मालिखेत् ।
रक्त वर्ण रसेनाथ नीलं चापि समालिखेत् ॥
ल ॥

One may paint gods, human beings beasts, serpents, birds, creepers, trees,, mountains,seas etc. as one has heard of or seen and noted in one's mind. The painter should be calm in mind, seated at ease, in a room free from dust, on a clear day and should draw the figures with a pencil made of lamp black after carefully recollecting all the full details from his memory. If he happens to draw a line wrong he should rub it out with clean new cloth and should draw it again so as to show the exact size and form. After the figures are drawn the sky should be painted yellow outside the pencil lines which should then be rubbed away and made dark and fine. After the fine lines are drawn the sky should be finished by the addition of red and blue colours outside ; that is the sky should be yellow round and near the figures, red beyond and blue at the ends or further away. It should grow darker and darker as it recedes from the figures to the end of the wall nd border line.

अथ वर्णानि विन्यस्य तत्र तत्रोचित क्रमात् ॥
लेखन्या स्थूलया मद्यं निष्कलंकं समालिखेत् ॥
ततो नम्रोन्नतादीनि विशेषाणि समाचरेत् ॥
श्यामोज्वलत्वभेदौ च तथा पारुष्यमादधेत् ॥
विन्यासक्रमभेदोच कुर्यात्सर्वं मनोहरम् ॥
प्रांते कज्जलवर्णेन सूक्ष्मया सांलखेद्बुधः ॥
शिल्परत्न ॥

After the figures are drawn the various colours should be put on with a broad brush in light shades and then the high and low places should be shown by means of shading. Shading is of four sorts viz black and white as well as dark and light and these are laid and spread out so as to be attractive. The outline should be drawn by a fine dark line and the border with a thick one.

मृदुरक्ते तु सिंदूरं गैरिकं मध्यरक्तके ॥
अतिरक्ते तु संयोज्यं वर्णे लाक्षारसंविदुः ॥
मनः शिला पीतवर्णे ततो न्यत्पूर्वमुक्तवत् ॥
सितं रक्तेन संयुक्तं गौरच्छविहि दृश्यते ॥
श्वेतं कृष्णं च पीतं च समभाग विमिश्रितं ॥
शारच्छवीति विख्यातं वर्णकारसुखप्रदं ॥
श्वेतं कृष्णं समंमिश्रं गजवर्ण मुदाहृतं ॥
रक्तं पीतं समंमिश्रं बकुलस्य फलाकृतिः ॥
ज्वलनाभमिदं ख्यातं अग्निवर्णनिभं परं ॥
पीतस्य द्विगुणं रक्तं मिश्रितं त्वतिरक्तकं ॥
श्वेतस्य द्विगुणं पीतं मिश्रं ख्यातं सुपिंगलं ॥
कृष्णस्य द्विगुणं पीतं मिश्रितं त्वंशु संमितं ॥
तदेव मानुषो वर्णः कृष्णं पीतं समंतु वा ॥
हरितालं श्यामयुतं शुकपक्षनिभं भवेत् ॥
लाक्षारसेन सयुक्त हिंगुलं त्वतिरक्तकं ॥
लाक्षारसन संयुक्तं कृष्णं जंबुफलाकृतिः ॥
कृष्णं नीलेन संमिश्रं कशवर्णे मुदाहृतं ॥
लाक्षार संजाति लिंगं सितवर्णे तथा समं ॥
संमिश्र मुत्तमं वर्णं हिंगुदेनाव वा युतं ॥ शिल्परत्न

When one wants light red colour he should use red lead, for medium red, red ochre should be used and for dark-red he should use lac. For yellow colour मनः शिला should be used. Red mixed with white is called rose color, गौरछाव and when black, yellow and white are mixed in equal parts it is called dark human colour

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शारच्छवि. White and black mixed in equal parts is गजच्छवि or grey, and red and yellow mixed in equal parts is बकुल the colour of bakul fruit, this is also called ज्वलनाभ red charcoal or fire hue. Two parts red mixed with one part yellow is अग्निवर्ण bright fire hue. Two parts yellow mixed with one part white is beautiful brown पिंगल and two parts yellow mixed with black is अंशुवर्ण ray colour. This colour in which there are equal parts of black and yellow is the colour of the human skin. Yellow ochre mixed with blue becomes green like the colour of a parrot. Red deep red and black mixed with lac is mercury mixed with lac is the colour of जांफल jambu fruit. Black mixed with blue is the colour of hair, and lac mixed with white is bright red.

एवं मिश्रक वर्णानि युक्त्या संयोज्य संलिखेत् ॥

In this way mixtures may be used to suit any shade required in the picture. The whole world is thus made up of five primary colours mixed in various proportions to suit all the shades that we see.

माहिषत्वचमादाय नवां तोयेन पाचयेत् ॥
नवनीत मिवायाते गालयित्वा सुवाससा ॥
गुलिकाश्च ततः कार्याः शोषयित्वा महातपे ॥
वज्र लेप मिदं ख्यातं चित्रकार सुखावहम् ॥
क्षिप्त्वोष्णतोये विद्राव्यस्तत्तद्वर्णेषु युक्तितः ॥
कपित्थ निंबनिर्यासतोयस्थाने नियोजयेत् ॥

शिल्प रत्न०

The fresh hide of a buffalo should be boiled in water, the fat that collects on the water like butter should be passed through cloth and dried into cakes in the sun. These cakes boiled in hot water make a good fast glue and should be used instead of the juice of कपित्थ and निंब as mentioned above.

अथ स्वर्णं पेषणार्थं पत्री कृत्य यथा मृदु ॥
तत्पत्रं शकली कृत्य सूक्ष्मात्सूक्ष्मतरं भवेत् ॥
किंचित्सिकत संमिश्रं शुद्धतोयविमिश्रितम् ॥
पेषयेत्पेषणीश्वभ्रे सुश्लक्ष्ण द्रवदा सुधीः ॥
जाते सुश्लक्ष्णे तद्विश्लष्टं काचे पात्रे जलैः सह ॥
आलो ड्योर्ध्वं गतं पंकं सिकतां च पुनः पुनः ॥
संत्यज्य जातं स्वर्णस्य पंकमत्युज्ज्वलं बुधः ॥
युक्तितो वज्रलेपेन सह संयोज्य योजयेत् ॥
अथवा वज्रलेपेन स्वर्णस्थानं समालिखेत् ॥
विन्यसे त्तत्र तत्राशु यथायुक्ति विदारितान् ॥
अतीव मृदुजान्स्वर्ण पट्टानपि द्रुहैः पुन ॥
कार्पासपुंजैः संमार्ज्य प्रकाशी क्रियतामिदं ॥
एवं पूर्वैः स्वर्णलेपविधि रुक्तो द्विधा बुधैः ॥
ताम्रं च रजतं चापि एवं संयोजयेद्बुधः ॥

शिल्प रत्न

Gold should be made into very fine sheets and these should then be powdered and mixed with fine sand. This powder should be mixed with water and ground in a mortar with a pestle. This mixture should be allowed to settle in a glass pot and the sediment should be carefully mixed with ghee. Another method of doing this is that the picture should be drawn with glue and over this the powder of gold should be sprinkled at once and spread with cotton wool. In this way gold painting is done by two methods. Silver or copper painting is done in the same way.

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FREEDOM OF THE WILL.

(By Pro. Nand Lal Khanna M. A.)

The problem of freedom of the will has been exercising the minds of men since remote antiquity. Morality is possible only to a free agent. Judgments implying praise or blame of men's conduct presuppose their ability to choose between alternative courses. Ought and can are intimately related with each other. Punishment is justifiable only on the assumption that man's actions are more than a mere link in a chain of causation. Obligation and responsibility would be nothing better than a chimera, if human actions at any moment were the inevitable consequence of antecedent conditions and circumstances. "The logical consequence", says Eucken, " of determinism can be nothing less than the destruction of every thing which is characteristic of the spiritual and intellectual life of man". Some metaphysicians maintain that, theoretically at least, it makes no difference whether we are free-willists or determinists ; if our actions are the results of our nature, they will be shaped and influenced by whatever shapes and influences our nature, and our nature is formed by our past history. Our conduct at any moment therefore, is the inevitable consequence of our antecedents and our nature and we can not legitimately be held answerable for our actions. On the other hand, if our actions are not the necessary results of natures, they are novelties in no way connected with us and hence we can not justly be called to account for them. It is possible, however, to escape this dilemma, if we can show that there is always an incalculable element in human will. A man's actions flow from his will and in that sense they are his, but his will is not determined totally by his heredity, environment etc. There is always an element of choice in volition and it is possible for a wrong doer to act otherwise than he does; hence it is possible to assign responsibility and award punishment.

A man's whole attitude towards life and its problems will be modified according as he is a determinist or a free-willist, and hence it will be worth while to sift the relative merits of these time-honoured doctrines. Let us take up determinism first. It is a very old doctrine though the name is a comparatively new one. It is the old necessitarian theory in a new garb, and it has very high credentials for it can count the Stoics, St. Augustine, Spinoza, Luther and others among its followers. It received a special impetus in the 19th century and found peculiar favour with the German people, among whom free-willism came to be looked upon as a mark of intellectual imbecility. Determinists,to-day, can offer a formidable array of cumulative evidence in support of their view. There arguments may be summed up as follows :—The belief that events are determinately related to the state of things immediately preceding them is now generally held, in respect of all kinds of occurrences except human volitions. And it is the fundamental postulate of science that the universal order can admit of no exceptions, and that what seems exceptional must cease to be so in the light of advancing knowledge. It is highly probable therefore, that human nature is a part of the universal nature of things and that causation reigns supreme in the former and the latter alike. The portion of human action which is originated unconsciously is admittedly determined by physical causes;and we find that no clear line can be drawn between acts of this kind andthose which are conscious and voluntary. Actions which we habitually perform, continually pass from the conscious into the unconscious class, and there is no kind of action originated by conscious volition,

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which cannot also under other circumstances be originated unconsciously". Again, impulsive acts are determined by the strength of the stimulus and the state of our previously determined temperament and character at the time of its operation. We always explain the voluntary action of all men except ourselves on the principle of causation by character and circumstances. The life of man in society involves daily a mass of minute forecasts of the actions of other men, who are thus necessarily regarded as things having determinate properties, causes whose effects are calculable. We infer generally the future actions of those whom we know from their past actions and if our forecast turns out in any case to be erroneous, we do not attribute the discrepancy to the disturbing influence of free will, but to our incomplete acquaintance with their character and circumstances. If we find anything inexplicable in history, past or present, it never occurs to us to attribute it to an extensive exercise of free will in a particular direction. Even as regards our own actions, however free and unfettered we feel ourselves at any moment, when that moment is past and we survey it in the series of our actions we naturally explain it as an effect of our nature, education and circumstances. We believe that we can take a resolve to act in a particular way in the future. But in this case one of two things is alone possible. Either our present resolve can not touch our future conduct, or we would no longer be free when the time comes to act. Great confusion would result if man were free in the choice of motives and good men could choose bad motives and bad men could choose good ones.

Man inherits his nature from his parents and his race. The inherited disposition is further influenced and fashioned by his environment and education. He is made to pass through a certain routine day after day. Certain acts are held up to his approbation and esteem by his parents and teachers. He repeats those acts and acquires the habit of willing in definite ways. A fixed character is formed. He imbibes the ideas of his age as he breathes the air round him. Even a Utopian like Plato was thought by Hegel to have been the child of his age. Such is the subtle influence of environment. By the time a man awakens to clear consciousness he is already essentially complete, fate, not his own will having shaped him. Man's self is thus a given quantity and the world of objective reality is another given quantity. The contact of these two in a certain way must of absolute necessity produce inevitable results. In other words man responds to iternal stimuli just as a stone reacts to the forces acting upon it. "Modern psychology," says Eucken, "shows us every action as a link in a chain, conditioned and determined on every side; it allows no scope whatever for independent action." All the interests of the scientific ambition are bound up with denial of freedom in any and every sense of the word. Its admission means embarrassment to the scientific consciousness and the surrender of the claim of science to finality in its view of human life.'

Against this array of arguments for determinism, free-willism must rely principally on the moral and religious consciousness of man. Freedom is the postulate of morality, says Kant.

Quite often I have the consciousness of alternative courses before me. One of them appeals to me as right and I feel that I choose this one and reject theo thers True it is, that sometimes a fierce conflict takes place between reason and passion and I feel that it is difficult to choose the path dictated by reason. But between difficulty and impossibility there is always an impassable gulf. Sometimes I am carried away by the rush of passion, but then I no longer feel that I am free. Either I must be free in my choice in accordance with feeling, or human nature is a monstrous lie. If I am prepared to disbelieve the testimony of my moral consciousness, why should I believe the evidence of my senses? In one case, I

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feel that I am free, in the other I feel that I see a patch of colour or an orange. How is the latter experience more credible than the former? Let it not be objected that we feel hallucinations and illusions also. These experiences possess none of the permanence, the persistence, the consistency, the certainty, the immediacy and the vividness that belong to the experiences of seeing an orange or feeling that I am free to choose. And if we begin to doubt such unequivocal testimony of our nature, we can not stop short of absolute scepticism. And if we go to that length we would be demolishing reason and science also. And so the cause of determinism will also suffer, along with that of free-willism. Hume questioned the ability of reason to ascertain the truth. And if we are disposed to be sceptical, where is the warrant for the validity of Reason? Again, there are certain intellectual beliefs which are incapable of demonstration. For instance, it can not by any mount of reasoning be established with logical certainty that the day will dawn tomorrow. And yet there is an irresistible intellectual craving to believe that the sun will rise tomorrow. And we are none the worse for reposing confidence in that craving. In the same way, there is a moral and religious craving to believe that we are free in willing and choosing. And if we respect one craving there is no reason why we should disregard an other equally claimant craving of our nature. We daily come across phenomena whose reality is undeniable but whose explanation surpasses our intellect. In the world there are a prodigious number of conscious and feeling beings, each a characteristic life-unit. These units are continually being renewed. But intellectually, it is inexplicable how life should result from a combination of lifeless matter or from a division of living matter. But for the undeniable evidence of our senses we would have denied the possibility of the multiplication of life units. It is clear, therefore, that we should subordinate our conception of possibility to the reality of things.

Freedom of the will and the ideality of Space and Time are the keystones of Kant's philosophical system. His solution of the problem of freedom is as follows:— Freedom is the absolute precondition of the validity of the moral life. The moral law has no meaning unless what I ought to do, I can do. But as a part of the phenomenal world, a man's acts are but links in a chain of causation and therefore not free. So there must be another and noumenal realm within which he has the freedom required by the moral life. Kant escapes determinism by postulating an intelligible world as the ultimately real world, and by denying the ultimate validity of the world of experience in which causality rules. In so far as a man is under the influence of Reason, he is a member of the noumenal world and is free. But he belongs to the phenomenal world and is determined in so far as he is under the influence of sensibility. This solution has not met with universal acceptance. Yet a view championed by Kant must have something in it.

It may safely be affirmed that there seems to be a certain dualism in human nature. On the one side man belongs to nature, and on the other he partakes of a different reality, and is superior to nature: Struggle for existence is the law of nature. The fittest survive, the weaker go to the wall. But in man the working of this law is modified by sympathy, altruism, and compassion. The sick, the weak and the helpless are the objects of special consideration. In the animal world, pleasure and pain alone move to action. Man often subordinates utility to considerations of right and duty. This sense of rightness and duty is peculiar to man. Moreover the judgment of the right and wrong is a simple judgment quite distinct from the judgment of the useful and harmful. The feeling of right and duty like the sensation of colour

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and the feeling of beauty resists all analysis. It is not reducible to a product of individual or racial experience. It is possible, nay, probable, therefore, that man is more than a mere part of nature and that the law of nature does not govern the whole nature of man.

Determinism is the necessary concomitant of certain metaphysical theories: It is the obvious corollary of Spinozian pantheism. If all things, without exception, follow from the necessity of an all-embracing divine nature of which man is but a manifestation or mode, human freedom is resolved into an illusion.

Materialism also involves determinism. If matter is the ultimate and supreme reality of the universe, and mind is but a subtle phase of matter, the material law must be the law of man also. Evolutional theories, too, reducing, as they do, the life of man to a series of adjustments of the individual to his environment, or of balancings of equilibrium, preclude the possibility of freedom. Hegel's theory also supports determinism. Man is the passing manifestation of the absolute Reality, he is the reproduction in time of the eternal Self-consciousness of God, and all things follow from the necessity of the Divine nature. On the other hand, the doctrine of a plurality of individual souls distinct from God, is generally the ally of freedom of the will. If spirit is something distinct from matter, and if it is the eternal reality behind the empirical self of psychology, the self may be modified by, but it can not be the product of, influences like heredity and environment. And thus room is left for freedom. A discussion of the relative merits of these metaphysical theories, is outside the scope of this short essay. One thing, however, may safely be affirmed. It is morality that lends dignity to man. It is spirituality that constitutes his distinguishing characteristic. Without them man is reduced to the level of a mere animal. And without freedom morality and spirituality are illusions. If man is not free to act, the intellect also becomes but an instinct capable of serving no lofty practical purpose in life. Determinism unduly contracts and lowers man. And it is well nigh impossible to carry determinism into practical life. Determinists like St. Augustine and Luther could not be wholly consistent with the theory in practice. To all intents and purposes the logical outcome of determinism is pessimism and we should be on our guard against a theory having such ominous implications.

A PARALELL TO PLATO'S 'THEORY OF IDEAS' IN THE INDIAN PHILOSOPHY.

(By P. Satya Vrat Siddhant Alankar.)

Plato saw a mother sacrificing all her comforts for the sake of her child; a hero bidding good-bye to his dear ones for the call he felt towards his country and a missionary willingly undergoing persecution for the devotion he felt to what he regarded as truth———and in all such feelings he observed one thing——the Idea of the Good. Plato saw an action which was graceful, an object, a bird, an animal, a man, a woman, a child that were beautiful, and the conclusion was the Idea of the Beautiful. And so he arrived at other Ideas———the Idea of Justice, Being, Truth, Identity and

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the rest. The discovery went further. There must be the Idea of Man, Woman, Child, Bull, Horse and all animals; in short, all common nouns must be ideas, for they are generalisations underlying the different forms and objects ! Yes, Plato saw himself face to face with a Theory——a truth—— commonly known to the students of Philosophy as " Plato's Theory of Ideas."

cause of the repetition of one knowledge in different places——That is called Jati."

The following passages occurring in the Chhandogyopanishad present a striking paralell to Plato's Theory of Ideas :—

Shwetketu returns home after graduation and is questioned by his father thus :—

It was also contended by Plato that Ideas were the only Realities. One action could be wrong, two actions could be wrong, many actions could be wrong, all human actions could be wrong, but on that score the Idea of Goodness could never become extinct. It would as positively exist as ever. The conclusion was it must be a permanent idea. The ideas of Goolness, Beauty, Justice, Truth are imparishable ideas——they are the Realities lying behind this phenomenal world. Thus Plato conceived Ideas as Realities, more real than the real world, and this justifies his followers calling themselves, for some time, as Realists.

A student of Aryan Philosophy comes across an exact paralell to Plato's theory, in the description of Jati (जाति). Says Nyaya Darshan :—

" समान प्रसवात्मिका जातिः "—

[2nd Chap.—II Part, 71.]

"या समानां बुद्धिं प्रसूते भिन्नेष्वधिकरणेषु तया बहूनीतरेतरतो न व्यावर्तन्ते योऽर्थोऽनेकत्र प्रत्यय-नुवृत्ति निमित्तं तत् सामान्यम् "

" That which produces the idea of sameness in different objects, that which keeps many undistinguished from one another ; that which is the

श्वेतकेतो यन्नु सोम्येदं महामना अनूचान-मानी स्तब्धोऽस्युत तमादेशमप्राक्ष्यः । येनाश्रुतं श्रुतं भवत्यमतं मतमविज्ञातं विज्ञातमिति ?

"Shwetketu ! as you are so conceited considering yourself so well read and so stern, my dear have you ever asked for that instruction by which we hear what cannot be heard, by which we perceive what cannot be perceived, by which we know what cannot be known ?

कथं नु भगवः स आदेशो भवतीति?—"What is that instruction " asked Shwetketu.

यथासोम्यैकेन मृत्पिण्डेन सर्वं मृण्मयं विज्ञातंस्याद्वाचारम्भणं विकारो नामधेयं लोह मित्येव सत्यम् ।

Said the father " As, my dear, by one clod of clay all that is made of clay is known, the difference being only a name, arising from speech, but the truth being that all is clay "

यथासोम्यैकेन लोहमणिना सर्वं लोहमयं विज्ञातंस्याद्वाचारम्भणं विकारो नामधेयं लोह मित्येव सत्यम् ।

" And as, my dear, by one nugget of gold all that is made of gold is known- the difference being only a name, aris,

ing from speech, but the truth being that all is gold."

यथा सोम्यैकेन नखनिकृन्तनेन सर्वं कार्ष्णायसंज्ञातं स्याद्वाचारम्भणं विकारो नामधेयं कृष्णायसमित्येव सत्यमेवं सोम्य स आदेशो भवतीति।

"And as, my dear, by one pair of nail-scissors all that is made of iron is known, the difference being only a a name, arising from speech, but the truth being that all is iron,——even so, my dear is that instruction.

Shwetketu saying that he was still ignorant of that knowledge, his father replied :—

सदेव सौम्येदमग्र आसीदेकमेवाद्वितीयम्

"In the beginning, my dear, there was that only *which is* (सत्), one only, without a second.

तद्धैक आहुरसदवेदमग्र आसीदेकमेवाद्वितीयं, तस्मादसतः सदजायत।

"There are some who say, in the beginning there was that only *which is not* (असत्) one only, without a second, and from that which is not, that which is was born."

कुतस्तु खलु सोम्यैवं स्यादिति होवाच। कथमसतः सज्जायेतेति सत्त्वेव सोम्येदमग्र आसीदेकमेवाद्वितीयम्।

"But how could it be thus, my dear?" continued the father. "How could that which *is*, be born of that which is *not*? No, my dear, only that which is was in the beginning, one only, without a second."

Thus does Shwetketu's father beautifully lead his son to the One Supreme Idea (सत्) which is the cause of all other ideas. Plato. too, strove to show that all phenomena of the universe presuppose eternal ideas, and these gradually lead up to the Supreme Idea ——the Highest Good——God.

All Indian systems of philosophy, without exception, attach great importance to the theory of Jati. The Sanskrit Grammarians make the nearest approach to the Greek Philosopher, both declaring in unfaltering tones the ideas to be the Eternal Verities. Thus far do facts lead us and further I leave scholars to draw their own conclusions.

THE MALKANA RAJPOOTS AND OUR DUTY.

(By Mr. Anand Bhikshu.)

Who are Malkana Rajpoots? Are they Musalmans? Do they observe Roza and Nimaz? Do they interdine and intermarry with the Musalmans? Do they abstain from allowing the tuft of hair to grow on their heads? In all these essentials, though they be mere outward forms and no essence of religion, they are as good as Hindus. They are Muslims in name only. No, not even so. They are named as "Singhs" and "Narains"; They are proud of being called by Hindu names and as the descendants of the Hindu

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Rajpoots. They worship Hindu gods, go to the Hindu temples, use Ram Ram in saluting, scrupulously preserve the top knot of their hair and intermarry in their own classes only. They treat the cows as the object of worship and obey their Brahman priests. Their names, their mode of living, their customs, their manners, their features and their dresses all go to prove that they are Hindus and in some respects better than the so-called Hindu Rajpoots, who eat meat and drink wine.

Then what was it that had kept them at a distance from their Hindu brethren ? It was nothing but neglect, bigotry and short-sightedness of the Hindus that was responsible for their social ostracism so long. Their ancestors were compelled for some reason or other, to accept Islam and these poor fellows are therefore worthy of no attention or reclamation by their own brethren or kinsmen. And what is the bar ? Have the Hindus no sympathy for them ? Does not Hinduism allow *reconversion*, if it might be called reconversion. Are not the Malkanas anxious enough to seek readmittance into their own community ? Those who know their Malkana brethren can assert with confidence that they consider the so-called conversion to Islam an evil which latter day weakness of Hinduism has prevented them from shaking off—Then where is the obstacle ? why this halt ? It is simply because it is erroneously imagined that the reclamation will put a strain on Hindu-Muslim relations. It is liable to endanger the Hindu-Muslim unity——Nay it will stand in the way of the achievement of Swarajya. No true Indian whether Hindu or Mohamedan, can have this conviction. On the contrary from every point of view it appears to be a cause worthy of the first and foremost attention of all who are intrested in the betterment of society and welfare of Humanity.

If religion be at all a matter of faith and conviction, three centuries and over have not strengthened that new faith in the Malkanas—Hindus they were originally, and their partial, conversion was mainly due to force. The centuries had developed this conversion into true faith, Hindus would not have been enthusiastic over their reconversion. Whether the converts are themselves unwilling to take to Islam in entirety, or it is the neglect of the Muslims, the Malkans, as they are now, are more Hindu than Muslim. No impurities ever crept in to them. They are as pure as ever. There was not much of unorthodoxy ever visible in them, but if there is any, the taking back of the Malkanas can not be called " reconversion ", " reclamation " or purification.

Impurity or weakness was in the Hindus, who did not so long welcome the Malkanas with open arms. But why is the removal of certain social restrictions causing so much stir in the Muslim camp ? " Why do our Mohamedan friends find cause for complaint against the Hindus and raise the cry " Islam in danger" and " Unity at stake" ? Musalmans claim, as followers of other faiths do, the right of conversion. If Hindus assert in conformity with their religion, the sameright of conversion, no true Musalman should deny the same right

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to the Hindus. But this, as already pointed out, is no real social conversion. It is purely a social affair of the peoples of the same caste, creed and religion—As neighbours, the Mohamedans should give the Hindus the credit of rectifying their mistakes rather than find a pretext to pick up a family quarrel with them and prepare to carry a holy war, as it were, throughout the length and breadth of the country.

There can be no question that the Hindu-Muslim Unity is a daily growing plant, as yet in delicate infancy, and requires special care and attention. And it can be said without any fear of contradiction that the Hindus have given practical proof of friendliness and toleration under the trying circumstances at Malabar and Multan. Among the vast majority of the Hindus it was not even the case of suppression of their feelings at the alleged atrocities. Atrocities or inhumanities were taken no more than as passing family misunderstandings. It is now for the Musalmans who claim to lead their masses to make their coreligionists, realise that it is a criminal folly to quarrel over trivialities and that they should not put undue strain on their Hindu brethren to forego their religious and social duties which in no way endanger Islam or Hindu-Muslim Unity.

The aim of the national movement is to achieve unity, yet the Hindu, Musalman or Christian is not required to make the least surrender in the matter of his religion. National unity should rather lead to the free development of each Indian religion.

Sad though it be to reflect, needless alarm in the name of religion and such an adamantive religion as Islam, if persisted in, would give the impression that the Musalman can think of Swaraj in no other terms than those of Khilafat. No true Hindu ever thinks of putting too much strain on Muslim loyalty even in the matter of cows. Can the Hindu be supposed to have developed a mania for re-conversion? For the Hindu it is not the cry of religion. It is purely a minor readjustment in domestic relations among the Hindu Communities.

There is not a shadow of doubt that without unity between the Hindus and Musalmans the achievement of Swarajya is but a dream. But the cement that binds up the two, should not be so wet and loose that a gust of wind may blow away the grand edifice as a house of cards.

Now that the Hindus are practically evincing that true liberal spirit of Hinduism, it is the duty of every true son and daughter of the country to promote that noble and common cause of the achievement of Swarajya and take ample share in the service and uplifting of those whom human tyranny and prejudices have so long practically put out of the pale of humanity and universal brother-hood.

The Malkana has so long been a victim of social tyranny at the hands of his own kith and kin and now deserves better fate. There is an end of all mortal things in the world. So let their sufferings and miseries also come to a close. It has been their long-cherished desire to go

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back to their own fold and they are now quite welcome.

'Life is a mission and duty is the highest law! Let each of us have fair play and fair chance of the best fulfilment of our duty. This is the only way of the achievement of Swarajya and true form of service of the country as well as of humanity.

I had the pleasure of witnessing on the 22nd. inst., with a band of fourteen energetic students of Prem Maha Vidyalaya, the noble work of "Bhartiya Shuddhi Sabha" at Anore village, near Goverdhan in the Muttra District and was deeply impressed by the sight of such unrivalled patience and *Tapasiya* of these Malkana Rajputs, who in spite of all sorts of sufferings due to the long-established prejudices and deep-rooted hatred of Hindu orthodoxy, had a burning desire to go back to their own fold, and showed no indication of any undesirable feelings towards the Hindu Society. Now it is for us to pay our debt and extend our most loving and helping hand to them.

The matter is of first rate importance and cannot be ignored or postponed for a second without serious loss to the social strength of India. There is no time for trifling. The venerable Swami Shardha Nand and Mahatma Narain Swami have kindly accepted to lead. Toleration and liberality, the true essence of Hinduism, are at stake. What some of our Mohammadan brothers are pleased to call re-conversion is nothing more than the removal of untouchability in a particular form. It is in that spirit that I approach the question and it is in that spirit I want every one to approach it.

The Hindus give an undoubted right of conversion to the Musalmans, Christians and followers of every other religion. This right is no eyesore with them. A religion, if truly believed in, requires preaching, and if as the result of preaching conversion takes place, no artificial barriers should be raised against it in the case of tolerant Hinduism. Hinduism may not have exercised this right of conversion for some time, but the right can hardly be denied to it. Would our Musalman brethren, who believe in universal brother-hood stand in the way of the Hindus, when they are out not for conversion but to purge Hinduism of narrow social restrictions among the various sections of their communities? The appeal issued by Swami Shradha Nand Ji for men and money will, we believe, meet with a prompt response.

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THE DISCIPLE OF DEATH.

(By Chamupati).

The author of Kathopanishad, that beautiful treatise on the sublime intrinsic attributes of the soul as distinct from matter, makes Nachiketa, who as aninexorable seeker aftertruth, has left his indelible mark in Sanskrit literature, approach Death as its disciple. The idea, for its most befitting choice of a teacher, has struck us many a time. Death has been the eye-opener of many a soul, that has, by witnessing one tragic incident, been given quite a new trend of thought and conduct in his hitherto monotonous humdrum life. The Arya Samaj celebrates every year its Rishi Bodh Utsav. That is the day when the rude frolic of a rat before the trident-armed Shiva made Dayanand conscious of the futility of idol-worship. The event, they say, was a turning-point in the life of the Sage. So no doubt it was. The incident, trivial though it be, set the boy thinking, arduous thinking. He never forgot this trivial happening till the end of his days. We wish the Arya Samaj knew the date of another occurrence graver still, one that in shaping the Dayananda that was to be, was of greater consequence, as it stirred the soul of the sage, while the shock of the rat's rude rattle had reached merely his brain. The death of his uncle struck him dumb. His sister's death he viewed as separation, separation for good, as he had found his uncle's death had ere that turned out to be, of a dearly loved one. This was a sentimental shock. The smooth flow of his fraternal love appeared for a moment to be rudely disturbed. He felt a wrench, a severely felt pang. At his uncle's death, however, his feelings had been quite different. It was not the pain of a parting, the parting of one of his dearest relatives, though affection in this case was not a whit less than in the other. The fact of Death in this case had monopolised his whole attention, his whole feeling; it had shaken his whole being. That it was the death of a relative was a secondary circumstances; Death, stern death—it was Mula's first experience of death—stood before him as a spectre. He remembered this experience, and was always haunted by it. It was a riddle, to solve which he took his vow of celebacy. Virajananda taught him for two years and a half. Yogis instructed him in the mysteries of Yoga, and he was heartily grateful to them for the favour. His tutelage in the academy of Death continued till he was formally recognised as a disciple, a *Brahmachari* who had undergone his course of discipline—for what else were the excruciating pains he suffered before his death—at Ajmere. Death alone solved the riddle that death had propounded. He was मृत्योर्ब्रह्मचारी, the disciple of Death, as the Veda styles an earnest pupil. The verse of the Veda in which this epithet appeare runs as follows :—

मृत्योर्ब्रह्मचारी यदस्मि निर्याचन् भूतात् पुरुषं यमाय । ब्रह्मणा तपसा श्रमेणानयैनं मेखलया सिनामि । अथर्व ६० । १३३. ३.

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I that am a student of Death, solicit of Yama (a knowledge of) the Purusha (as distinguished) from matter. That (Purush) I bind with this girdle by virtue of (my study of) the Veda, austerity and labour.

The reader will percieve that this verse contains, as in a nutshell, the substance of the whole discourse of the Kathopanishad. The mantra is, as it were, the germ of the latter treatise. The character of Nachiketa, at least, has been developed out of the stern resolve which the student is represented as making in this verse. Round this resolve the whole story of the Upanishad hangs, as round a fulcrum hangs a lever. One more proof this in support of the statement of Indian scholars of the Veda, that the whole subsidiary literature of the Vedas bases itself on the Samhita texts.

A recent writer has averred that to the woman-prophet the fact of brith, while to the man-prophet the fact of death has been, and always will be her or his revelation from heaven. The consciousness of something above matter, something that the senses are incapable of perceiving, dawns on the woman when she sees in her lap a living soul breathing and moving and feeling and stirring, as she herself breathes and moves and feels and stirs. From within her has dropped another *her*, a second she or it may be he. Is that a product of her body? The matter of the body may be, not the sentient he or she that stirs. To the woman the fact of her maternity is the most profound wonder. In the ceremony of birth, Jatakarma Sanskara, the father of the babe whispers into the ears of the new-born child वेदो असि thou art the Veda. What does the formula signify but that the new birth is a new revelation, a new Veda? According to the Arya conception motherhood is the highest self-fulfilment of woman, for by it she becomes a Rishi, a medium through which wisdom divine peeps on the human intellect.

To man this means of communion with Heaven is denied. To him is open another vista of superhuman experience, viz. the vista of death. The woman passes through that vista too, during the throes of her maternity. For man his perpetual preparedness to face and willingly embrace death when it comes, constitutes his immortality, his conquest of the Devil.

To him is given the manly part of protecting those that depend on him. While woman has enough of knocks in the interior of her home, from buffets from outside she is destined to be immune. Against these her husband's arms are to be her armour of steel. The Veda entrusts the external watch and ward of the house to the male members of the family. Even dogs may go to sleep. It is men that wake through the night and keep off thieves. The language is symbolical. The vigil that the Veda enjoins is intellectual wakefulness which in concert with physical strength and mental courage keeps the house safe from all manner of dread and danger.

The whole system of education conceived in the light of the Veda is a preparation for the discharge of this among other duties. The school is to be located at the confluence of rivers or in the gorges of mountains.

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गह्वरे च गिरीणां संगमे च नदीनाम् where wild animals abound, where in the night, snakes and reptiles creep along the ground, where nature is always tumultuous. In the midsts of these dangers the Brahmachari grows up. His hard physical life forges his impregnable physical frame of steel, while spiritually his constant braving of death makes him a veritable Death's Disciple, so that when he is mature and becomes in due course, a householder, he is to guard his near and dear ones himself. He does not like the Bombay banias of today, entrust whole weal and wealth to the watch his and ward of hired Pathans whose fidelity like unto a hired house is but a precarious shelter, more precarious, as for its withdrawal not even a moment's notice is necessary. None who has not been Death's Disciple is qualified to enter the academy of life. A worthless citizen he who depends for his own safety on the vigilence and virility of others!

THE GAYA CONGRESS FROM A PICKWICKIAN POINT OF VIEW

(S. P. KULYAR.)

Thou holy Gaya, what immense debt do I not owe thee! Some two thousand and five hundred years ago thou gavest enlightenment to Gautama Sidhartha, known to the world as the Budha—and now in the year of grace 1922 thou gavest Nirvan to me and to my 18000 colleagues assembled in thy ancient city.

We are Men—we who represent India, we only—and none other. We are Men not brutes or birds—we do not bray—all in one tune or pitch—so that you cannot make out the braying of one from the braying of another; —we speak, each in a distinctive voice, each with a music and a meaning all his own—We had assembled, 18000 of us. For what? They said it was to speak with one voice. I laughed at their childishness. I knew better. I told them it was a physical and psychical impossibility—they could all bray in one tune; but to speak with one voice—why, that was not given to Man by the wise Maker. My friends would not hear—they began to argue and to lament the want of a united action. They said India would go to rack and ruin if we failed to speak and act as one man. Suppose, they said, we had the direction of a government or of a military campaign in our hands, how would we fare with our divided counsel; one section saying—go this way and another saying—go that way. With such leaders, would not the government and the army perish?

I was adamantine—firm as a rock—my answer was simple. No argument, I said could make all men bray alike as do a certain species of the brute kingdom. If you are Men you cannot bray. You can only speak, each in a different dialect, each his own gospel. India may perish, government, civil and military, may go to the dogs, but Man must obey his nature. With his divinity, his conscience, his

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ideal, how can a man—if he be a Man indeed—how can a man give up his individuality and consent to act *en masse* as one of the gross elements of Nature, air, water or land. Water is water all over the world and one ape is as good as another, but man—one is a saint, another a devil, a third a poet, a fourth a philosopher and so on. Infinite individuality. How beautiful! It ought to be a satisfaction to all right-minded men that the final verdict of the Congress vindicated this high claim, we Indians have always put forward of being the only Men on the face of the world. All others who do happen to act in union are only *apes* in human shape. We alone are men. Englishmen may treat us as dogs. That is of no consequence. It is our own thoughts that will make or mar our lives. And we think ourselves as Gods and Divinities. Poor India, who cares for thee? Thou art only of earth, earthy or a chimera! We are divine souls.

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They say all religions lead to the same goal. That is only a pious wish, a pious hope—not a fact. What is the goal? Nirvan for some, Resurrection for others, Rebirth for still others. Even the one Supreme Being—the Lord of all—the Absolute—the Infinite—they cannot all identify. Some say He is One, some say He is Three. To some He is Personal, to others He is Impersonal. How beautiful, how great! Out of all these perplexities one thing is certain:—that whatever other things in nature or above nature be—we are many—we are diverse—(that we can not all agree)—that we cannot all be reduced to one Individuality—Just think of all Humanity thinking alike and acting alike!

* * * * *

Love is the essence of all religions. Suppose we begin as an experiment, to love all beings. All vices we eschew. Love only reigns in all our hearts. The murderer, the thief, the rake, the wanton all become godly people filled with a passion to love each and all. We rise of a morning and what more natural for such reborn souls as to begin the day with warm tokens of love and brotherliness. And we begin to kiss each other. We run to our neighbours and our neighbours come rushing in to us. There are 500 of them—mostly of the gentler sex. We kiss each other. Often it is a pang to tear ourselves from them, But there are so many and we proceed at a faster pace—2 or 3 to a minute. Now come the old men and the invalids from the neighbouring hospital. For a minute we pause—we are in doubt whether God created kissing for old men too—we doubt the wisdom of our new mode of life—but it was momentary—our weakness is gone—we return to our duty—though we quicken and quicken still more—and when we finish it is already ten o'clock. Then there is a scramble as to who should cook the food—all proffer themselves—all eager to save a brother's or a sister's trouble. This takes another hour of the day. The meal is ready and we sit down to it at 2 P. M. But we remember our poor neighbours and run to see if their dinner be also ready. We find they have not done with their kissing. We are only too glad to invite them to our homely fare—they come—they are rather too many for their family is large and—and—they rather somehow (which is very unaccountable to us)—eat large meals. But we do not mind—an occasional absence of these heavy disease-producing meals is a good thing. Now it is high time for us to run to our fields, for we now all labour and eat our bread with the sweat of our brow. We all go to plough the fields leaving our homes and our schools and our law courts and our shops and our manufactories deserted. The children are in high glee—they run riot—Oh, has not God created children for play? The sick, the old are lying helpless, immersed in their miseries, they moan, they toss in their forlorn beds. Has not God intended old age for pain and suffering just to make people remembe-

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Him before they depart this life ? And as it is not possible for all people to be taught equally, in music, or law or medicine, or painting or architecture or in any art or science, we have abolished these—nor do we care for luxuries in food or clothing —so that we chew our grains and go to our beds on the bare ground - in darkness, for there are neither oils nor candles to be had for love or money. Such is the progress we have made in our march to the new goal that within six months we are back to the point from which our fore-fathers had started some ten thousand years ago—with this one exception that in order to abolish pain—also, our fore-fathers, poor souls could not make this discovery—yes, to abolish pain we have abolished thinking—we live in pure existence--undisturbed by racking thoughts of care and anxiety. It has taken me a long time to convey to you a short and imperfect picture of the life we can lead by thinking and acting alike. But if you will shut your eyes and reflect a little you will find that a better and a complete picture of it is at the back of your sub-conscious mind. Thus it was not very long and not very difficult for the assembled 18000 to discover that with all the kissing and cooking and labouring each for the other—our new Religion of love led to no Elysian fields but to a dreadly wilderness—unromantic enough. No, No, Thinking alike and acting in concert—these betoken Death—not Life. For Beauty and Life there must be diversity—the more the merrier —And we resolved to stand by our Individuality.

* * * * *

Really how few people have the imaginative mind ! Life in India without the zeal and pungency of English Rule would be insipid—not worth living—How soothing to the heart of the uncouched millions to see the Das and Nehru and the like who seemed to despise to walk on the earth, so puffed up they had become—rotting in goal—eating the very food of mehtar. O ! British Government, Thou art mightier and juster than God Himself. Was not God unjust to give them so much wealth while so many of His creatures were starving ? Long live the Government that is more Bolshevik than Bolshevism itself ! Das and Nehru and Lala and Gandhi, indeed all the peacocks of India have been justly humbled and made equal to the once despicable crow. This is real equality and thanks for it is due to the British Raj. Who made Christianity? Pilate, not Jesus. It was Pilate who made Jesus great. Thank Pilate for the crucifixion—but for which there would have been no Resurrection--no Christianity The British Government is doing nothing less. It is making India great. It is making History—creating an Epoch—fulfilling the very purpose of the Creator —adding to the beauty of His work This is True Religion. Are we wrong if we take our cue from such a Transcendental Source ?

Our verdict is final. It is the Last word—of wisdom. Do not agree. Do not act in concert. God has given each man a new face—a separate voice. Why ? Read the meaning of that. Individuality that you are. Do not throw it away. India has rightly banished Unity once for all. Beware of those who ask you to join the majority, and thus drown yourselves and the British too, for that i the meaning of Unity.

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EDUCATION AND THE GURUKULAS

(By Shanti Devi.)

What is the teaching in the Gurukula? Is it preparing all boys to be Brahmans, or does it prepare, as is enjoined in Swami Dayanand's teaching, for all four castes? To be Brahmin, yes, that is ideal, yet how many are ready for that high calling? With little children at a very early age one can see the different castes developing in their disposition. How are the different temperaments provided for? It there a difference of training for varied activities? One cannot force nature, each individual has to grow in the place where he is. An indifferent Brahman is of less value than a true Kshatriya. One of the interesting results of the Gandhi movement is that out of it Kshatriyas are rising. They cannot follow Gandhi to his height, but they realize responsibility and take their places. Even little children of four years standing by their father and seeing Bureaucratic methods of compulsion, although their father has Brahmin instincts, will suddenly say, "they shoot Gandhi's flag. That is wrong," and later they demand for such toys as pistol and flag. For what reason? 'To shoot those who do wrong.' This is quite opposed to Gandhi's teaching which is 'only love can overcome hatred,' and that they who take to the sword shall perish by the sword. Even the two-edged sword of the tongue sometimes, kills, for if one speaks *of* truth unless one is absolutely pure one's own words burn and blister. Thus was it with Ezekial, when he spoke and he saw in his vision God purifying his mouth with coals of fire that he might be a fit messenger. Personally I do not want children to be taught to use pistols, for with knowledge comes the desire to make use of the weapons. Thus do soldiers desire it and war comes. To make swords into plough-shears and hate into love, that is the mission, for Love is the fulfilling of the Law of Life, and hate must eventually be cured by Love. The question is 'Can one teach the child this all-important thing?' Certainly in baby years an effort should be made to place only what is good before him and all teaching should be equal. I would not have killing in any shape or form shown to a child or let death be known, yet in India everything is open to the child. Life is bald, crude, ugly in its externals. Does that tend to make more poets? Do children live in a dream-world? We build all things with our mortal eyes. Does the Gandhi child at once see the firm, strong will, which holds the shattered flag still facing probable death but not meeting death because of the Love-light in his eyes, while the Kshatriya cries. "I must shoot. It is wrong. I should protect."

Why is it that the nations of the West have become so aggressive that even the Christian Church teaches war? Surely because of the lack of true Christian teaching.

Every word we utter, every thought we think, is produced in our lives and

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that of others—is sown into the universal. A nation has thus been produced that has carried Wars of the Cross for the protection of a sentimental idea, to make sacred a piece of land where a dead body was burried ; the body, not the soul.

The word of God was not kept holy which clearly said "Love ye one another for Love is the fulfilling of the Law".

"Resist not evil." Why should you waste energy on evil when your business is to be good, for goodness is all-powerful and evil disappears before it.

People say Mahatma Gandhi's way is not successful. If all joined with him at once, the thing would be done No one can put the millions of India in prison, and freedom lies inside a willing incarceration. To limit one's desires is to be happy, but most people desire as the Western desires to rule and not to be prevented ; to make wealth, not to give up wealth ; to hate and not love Fulfilment is dissatisfaction, they crave to go on even if they vomit and go back to the old lusts.

Now how does this affect our desire to teach the growing boy and girl ?

Is there no fight but the one with weapons ?

Surely it is distinctly written in Vedic Scripture, to overcome Loves and Hates and War and Peace.

How but by the powerful weapon of work, craftwork, and the delightful arts, of which housebuilding is spoken of as part of warrior craft, and the making o f a garden, the desert may blossom as the Rose.

A story was told me of an Assistant Commissioner, in Africa who found a Way of Love, to plant a grass plot. A man cast out from his tribe and all people because of his theiving habits found refuge only in prison. The Assistant Commissioner was but a boy of twenty-one (fresh from sporting chances) but he used this man to bring little handfuls of grass and plant them blade by blade ; he watered it also continuously and the man was happy in the doing. Each boy needs training which will teach him god-like things but all do not learn from books.

The Ancient Gurukulas took the Brahman at 7 years, the Kshattriya at 9 years and the Vaisya at 12 years.

Later they separated and went on to other Gurukulas to study as Brahman or as Kshattriya : the Vaisya having studied his father's craft until he was twelve probably went home after having studied his God knowledge throught Sanskrit.

For education at a younger age there were the parents or a school four miles from each village ; a rich school fed the children, the poor one sent its children to beg of the parents.

Boys would be trained according to the boy's father's profession or trade unless the parent brought his boy to be made Brahman.

The Gurukulas probably at the present time must find boys who are only Vaishyas although of Brahman parentage, but their education is suitable only to the Brahman. At present many boys whose parents are not professed Aryas, just visit a priest

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for a day or two and receive the thread having no knowledge of the Sanskrit. Every town and village needs its Gurukulas. Then at the later stage they could specialize.

In the present age is not the study of arm a little difficult ? For war is no longer that deliberate graceful thing taught in the Vedas, which is *ahinsa* compared to the late war, which teaches world-destruction. To be neutral, pacifist, as Switzerland, seems the only wise way. To compete with such wild orgies of war as Europe indulges in would be futile. To lead the world in the way of Peace would be a nobler achievement, and more suitable to the dignity of ancient India and Vedic teachigs.

Could one get on without police or soldier or lawyer ?

It presupposes the pure desire for good. the poverty and chastity of the Brahman and the elimination of the greed of the Vaishya and Shudra. Yet unless one builds the thought how shall the deed ever be ?

CONTEMPORARY THOUGHT REVIEWED.

THE EDUCATION OF INDIAN WOMEN.

Thus *The Hindu Message* in its issue for April 5, 1923 :—

In truth, various causes,chiefly economic, have operated n England to change the status of women in society. Even so recently as a century—or a century and a half —back, women in the west had a social status similar to that of our Indian women. It was the industrial revolution at the commencement of the Nineteenth Century that brought about their entrance into social life. The production of food by machinery in factories rendered it cheaper than woman was able to produce it at home, and so led to the almost entire disuse of cooking at home and the purchase of food at restaurants and other places of sale. The woman was able to utilise her leisure in various occupations, social and industrial, and to take her place constantly by her husband's side in various social pastimes. She has even become the rival and superseder of the male sex in many concerns of life. Moreover, the same growth of wholesale industry on a large scale has enabled Europe to dump the rest of the world with the cheap products of machine-made industry. For carrying on this Satanic work of exploiting and ruining the people and lands which have not developed machine-made industry, women have been attracted to the taking up of factory labour by the offer of high wages.—and we must not also forget that women are everywhere in the majority and also in the West, where there does not prevail a joint-family system to offer them protection without the need of following a life of self-reliant activity to gain their livelihood. Besides, as we have pointed out previously, the tendency in the West is now-a-days for women to try to avoid the trials of a married life and especially those of maternity and the trouble of rearing children, and hence to detest home life. This is chiefly due to the Western system and ideals of female education and female labour. The social system which makes women hate the life of the home and the responsibilities arising from marriage and maternity is certainly, in our view, not only unsound, but unnatural. Mr. and Mrs. Whetham, in their joint work on " The family and the nation " say well.—

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"In considering the physiology and psychology of the race, it seems clear that the stock of human life, our most valuable national asset, must, as in every sound economic system, be divided into two parts representing capital and income. Men represent the income, to be used and spent freely by each succeeding generation as need arises. Women must by considered as capital to be spent sparingly in the present, to be husbanded carefully for the future." Women are, thus the conservers of the safety and strength, of the human race and of the societies now existing on the globe. Hence, we should hold in high esteem those skilled and essential womanly duties on the proper performance of which the order, health cleanliness and comfort of the home depends. The same authors say :—" It cannot be doubted that the quiet home life necessary for the right birth and management of a large family is incompatible with many external activities, and with the gratification of a desire to seek an apparently larger sphere of immediate work and influence in social industrial, and political life." Hence for both married and unmarried women in the West, the education now given, while it fits them to attain a position of industrial independence and to gain the publicity and fame arising from the pursuit of the wider interests, national and imperial, of active public life, also makes them unfit for the successful performance of true womenly duties and unwilling to undertake " the necessary and wholesome restrictions and responsibilities of normal marriage and motherhood. " The Whethams also point out that " in towns and other areas where many women are employed in manual labour, such as places where textile industries are carried on. *the birth-rate is abnormally low,* "—that *a direct co-relation can be traced between the freedom of women from industrial occupations and the number of children they produce,* "—That " the absence of the mother from the home is to be deplored. Employment that takes her away should be discouraged by every means in our power." it is thus necessary that the home life of Indian women should be preserved, and that no changes should be encouraged simply because they have been adopted in the West. We must never forget that the force of emotion is the strong point in the feminine nature, and that it is the capacity for giving affectionate and self-sacrificing service flowing from that source that makes the proper sphere of female influence. The rough strength of man and his love of triumph in an atmosphere of conflict makes him fight like a loin in various external activities. Hence, when he comes home, he eagerly hankers after the peace and comfort which womans's patient care and loving tenderness, provides for him there. In the home, she exercises her freedom and authority in the fullest extent ; in the home her natural quickness to receive impressions and her acute intelligence can have full scope in the pursuit of various avocations sometimes profitable or involving only the mechanical drudgery of routine, but often requiring circumspection and knowledge of domestic economy and occasionally also the exercise of cultivated aesthetic tastes and accomplishments of diverse kinds. It would be sheer folly to unsex her by removing her from the sphere where she finds full scope for her varied excellences of nature and training and where she can enjoy every legitimate desire for freedom without coming into contact with the license or even the ferocity which characterises the scenes where men have their lots cast and achieve their legitimate triumphs in an atmosphere of strenuous rivalry and contention. By her introduction into the arena of strife, whether it be the forum, the senate, the market place, or the platform, she can only learn how to pervert her charming natural instincts of soft civility and dignified modesty of behaviour, and become an inferior and unattractive type of the masculine nature which she will learn to imitate, and thereby the home will cease to be what it is,—the haven of peace for both man and woman that it is now.

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We shall only state what are—and what should be—the general lines on which we must determine the system that we have to adopt and carry out in all its details, if we want to prevent the further degeneracy of our Indian womanhood. In the *first* place, women's education must be confined to the Vernaculars. There is an idea abroad—and it prevails chiefly among Europeans—that the very fact that there are so many vernaculars prevailing in the land gives our society the stamp of a semi-civilised culture. Nothing can be more absurd. Our Vernaculars are not to be regarded as rude and uncultivated specimens of what are known as *patoins*, like the Irish, Boer, or Welsh which are purely spoken dialects and have no classical or literary models which are worth preserving for ever among the famous treasures of our race. As the days pass, we see how their inherent powers of development and expression are being brought out in full and that all the knowledge of the modern world can be communicated through them in elegent and expressive language and in a style which will be understood by all, whether highly cultured or not, and understood, too, in a manner which will appeal to human hearts, and without producing the sense and impression of being a strange jargon imported from abroad and forced down unwilling throats and on unwilling ears by the fiat of an authority which they cannot set aside or control. In the *second* place, the education must be religious, with a curriculum in which the Sanskrit sources of our religion must play a large and decisive part. We must have again in our households women of the classical type—like the Maitreyis, Sakuntalas, and Damayantis of old, like the Ranis Ahalya Bai and Bhavanis of the mediaeval age—ruling there with influence and dignity as the equals and even the superiors of men in all that contributes to happiness and ruling, too, by their sweetres, tenderness, and powers of loving persuasion and spiritual purity. We do not want in India women of the type so much admired in the West who traverse half a dozen continents in half as many months, who shriek about all sorts of topics ranging from marriage to mysticism, from heaven to hell and from pottery to politics on a thousand platforms, and who fight shoulder to shoulder with men in every arena of life, business, and strife. We do not want also the educated "blue-stocking" and the "sweet girl graduates" trained in Colleges of the type which have converted our men into the disgusting types of denationalisation which abound everywhere at the present day and which have become a byword among all true Hindus who can still appreciate their rich inheritance of character, culture and civilisation. In the *third* place, our women must be trained in all the kinds of knowledge needed to enable them not only to pass a portion of their time in useful domestic occupation and industrd but also to keep the homes healthy and comely and train children and rear them properly, and so they must be taught the elements of sanitary science and sexual physiology, cookery, sewing and knitting, needlework and embroidery, and lastly, drawing and painting. In short, our view is that the education of Indian women must be such as to let her continue what she has always been,—the custodian of our ancient religion and timehonoured customs and *acharas*, and the determined opponent of all revolutionary modes of conduct which will only lead to social corruption and decay. It is better that our women have no education than have an education which will lead to the westernisation of our society and civilisation.. Swami Vivekananda has well said:—"India will rever be Europe until she dies." To educate Hindu women on Western principles of social equality with men or of their so-called social emancipation without any of the restrictions which, as some people erroneously think would hinder their full freedom of development but which really help to preserve their modesty and purity and charm, would simply amount to the practical destruction of all our ancient national

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ideals, to the hybridisation of all Indian races, and ultimately to the death of the Sanatana Dharma and the disappearance of all its spiritual methods and aims from the face of the globe.

SHORTHAND IN ANCIENT INDIA.

Rao Sahib R. Krishna Rao Bhonsle M. R. S; writes to the *Nation* :—

The third and last Madura Tamil Sangam (Academy—about A. D. 100) consisted of forty nine syndics, the revered Pro-President having been Nakkirar—a poet critic. The syndics sat in judgment over the literary productions of the poet who submitted them to Academy for its impramatur. Though the Pro. President was thoroughly independent in his opinion of men and books, yet he and his colleagues who were both to recognise merit, refused recognition adopting a dodge; when an original poem was presented before the Academy for approval they produced a copy of the same poem—to the utter surprise of the poet who had composed it—and said that the poem was not original, as they already had it in their library! How was the trick played by them? There were reporters to Sangam; they had their seats behind the syndic members on a lower level and were hidden from the view of the spectators. These trained reporters took down the stanzas *verbatim-et-literatim* as they were recited; they transcribed them into longhand and put them in proper order and handed them to the syndics. The latter showed this plagiarised copy of the poem and dismissed the learned poet who had come there with his original for imprimatur, and also dubbed him a plagiarist in addition! The unfortunate poet was taken and many were the victims to this fraud. This went on until the Poet and Saint Idaikadar went to the Sangam accompanied by the immortal Weaver-Poet Thiruvailuver (author of Kural) and his sister the great Poetess Auvai. Idaikadar who had suspected the trick of the academicians, composed a Tamil poem ("Oosi-murri") the stanzas of which contained onomatopoeic words—words which represented the cries of birds and beasts. He recited the poem in the presence of the syndics of the Sangam. The sharp pointed stylus of the reporters could not take down the strange stanzas of the novel poem. Thus Idaikadar managed to frustrate their attempt and put down the haughty and arrant academicians.

It must be admitted that it should have been physically impossible for the reporters of the Sangam to take down *ipsissima verba*—without the aid of Shorthand—all the stanzas repeated by a number of poets for a length of time. When vernancular Shorthand (a subject in the scheme of the Madras Government Technical Examination) not only in Tamil, but also in Telugu, Malayalam and Kanarese is a reality now, it must have been possible in days gone by. Nothing is new under the Sun. What the kind of "Shorthand" was of the Sangam reporters, I am unable to say, but there was a Tamil equivalent for "Phonographer." I remember Pro. M. S. Parnalingam Pillai of the S.P.G. College, Trichinopoly while discoursing on "Oosi-murri" before the present Madura Tamil Sangam, read a few stanzas from it and showed how Idaikadar succeeded in his attempt to outwit the members of the old Sangam who were guilty of literary thefts. This poem is quoted in the commentary to "Karikai" a great work on Tamil Prosody and also in the commentary to Tholkappiam by Nacchimarkiniyar the greatest of commentators. Through the courtesy of Pandit C. R. Namasivaya Mudaliar, Lecturer, Queen Mary's College, Madras, I have been able to read this rare poem (in manuscript in his possession) containing 54 stanzas, It is interesting to note that the Tamil equivalent for the word phonographer as given in the commentary to the poem by Arrai Payilan, is "oliyeluthalan" (oli—sound; yelutha—letter; alan—writer) The poem was namde

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"Oosi—murri" (oosi—stylus; murri—breaking), because the oliyeluthan's stylus (oosi) failed in the performance.

INDIGENOUS DRUGS.

A Plea for Research.

In *the Indian Medical Record* appears a highly interesting thesis on Indigenous Drugs, written by Major Chopra I. M. S., and Dr. B. N. Ghoshe, and read at a meeting of the Medical Section of the Asiatic Society of Bengal. We cull the following extracts from it for the benefit of the readers of the *Vedic Magazine* :—

Research on indigenous drugs should be undertaken with three main objects in view :—

(1) To make India self-supporting, by enabling her to utilize the drugs produced in the country, and by manufacturing them into a suitable form for administration.

(2). To discover remedies from the claims of Ayurvedic, Tibbi and other sources so as to be employed by the exponents of the Western medicine.

(3) To discover the means of effecting economy so that these remedies can come within the means of the great masses in India.

The first proposition is likely to lead to great results because a large number of drugs which grow in this country are known both to the Eastern and Western medicine and the properties and action in many cases are not unknown. The research here might with advantage be diverted into two main channels. Firstly, there are many drugs of established therapeutic value which are in use in the pharmacopœias of different countries. The majority of these grow wild in great abundance in many parts of India and a certain number are even cultivated. Some of these are collected and exported though an infinitesimal fraction of the quantity produced, to foreign countries, and come back to us in the form of standardised pharmaceutical preparations and active principles in pure condition, probably at a price a hundredfold of the original crude produc. A host of others grow mature and eventually die without being put to any use whatsoever. There are numerous examples but a few will suffice to illustrate the possibilities of their development.

Scope for Research.

(ii) Secondly, a large number of plants grow in India which though not exactly the same, have similar properties and actions resembling the imported and often expensive remedies, and would form excellent substitutes. That such drugs exist is well known, but since no effort has been made to work out their medicinal properties on scientific lines, or to confirm the work already done, there is a great deal of uncertainty about their action. Unless this is worked out it can hardly be expected that they will be taken into use by the profession, in place of more certain and tried remedies. We will give a few examples of these drugs to emphasize our statement. Artemasia maritima " Kirmani or Kirmala " grows abundantly in the high altitudes of Himalayas. A powder made from the dried flowers is an excellent substitute for the expensive Santonin and has been tried lastly in Madras with success. The corn of 'Colchicum Luteum' (Suranjan) from Kashmir closely resembles the official C. Autumnale in composition. The roots of 'Gentian Kurroo' (Kurki) of which several species grow in the Himalayas contain the same principles, gentianic acid and pectin as the imported European root and might with advantage be employed. 'Claviceps purpurea' grow on the crust of wheat and has properties resembling ergot. 'Coptis Teeta' (tita) from Assam contains the Alkaloids berberine and is a bitter tonic resembling calumba in its

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properties and 'picrasma quasssiodeis' (bharangi) from Malabar, both contain a bitter principle similar to quassia. Hemidesmus indicus' or the Indian Sarasaparilla (anantamul) from Northern India and Deccan has all the medicinal values of this latter drug. The seeds of 'Ipomoea hedracea' (kala dana) and Turpethum dhud or tarbup contain the resinous principles Jalapin and convolvulin and are as active as the official ipomaea purga, the ordinary jalap. This plant is not only found wild everywhere, but is also cultivated in some parts of India, 'Menthaarvensis' (Pudinah) and M. Sylvestris from the temperate Himalayan region yield an essential oil of good quality similar to peppermint oil imported in large quantities from China and Japan. Several species of blumea especially B. balsamifera and B. densflora which are plentiful in the Himalayas and are also found all over the peninsula yield a stearoptin identical to camphor imported from Japan. Several medicinally active species of strophanthus are indigenous to tropical India.

'Naregamia' 'alata' (tinpni or plitivel) growing in the western and southern regions of India is said to have the properties of ipecacuanha, 'withauia coagulans' (ashvaganda or punir) from the Punjab and Sindh has the power of coagulating milk similar to the ferment rennet. 'Carica papaya' (pepiya is a common object in Indian gardens and yields a valuabe ferment papain like tryptin in action. The leaves contain curpaine an alkaloid having a digtalis like action. 'Mylabris chicoriteleni fly) abounds in certain parts of Northern India and Kashmir, and has as good blistering properties as the Spanish fly nd at less than a third of the price.

The only way in which drugs can be cheapened and brought within the means of masses is to utilise the action of the local products and substitute them for the more expensive drugs of Western medicine. In our opinion this can be done by encouraging the production, collection and manufacture of indigenous drugs, and their pharmaceutical preparations in a systematic manner by (a) producing locally (b) substituting equally potent drugs for the imported drugs. We have already referred to both classes of these remedies and the possibilities of their development. Their active principles can be isolated and standardised preparations like tinctures, extracts, powder, etc. can be made without difficulty by the help of a properly equipped laboratory and inexpensive apparatus. If this can be done we will not only save the sea-born freight but there will be an enormous reduction in the cost of manufacture, owing to cheapness of labour. Tea dust from India and Ceylon is at present exported to South America at a nominal price and comes back to us as caffeine. Similarly nux-vomica, belladonna, datura, stramonium, castor oil seed and oil are all taken thousands of miles away for manufacturing refined products. This is not at present done in India. There is no reason against it provided research on the drugs is properly organised and botanists, pharmacologists and clinicians co-operate with each other. The medical store depots at the instance of the Indigenous Drugs Committee made pharmaceutical preparations of the well-known crude offical remedies which are indigenous to this country and issued them for trials to the dispensaries and hospitals with encouraging results. Some of the local firms in Calcutta have also taken up the manufacture of tinctures and extracts from some Ayurvedic and Tibbi remedies, but as these have not been properly investigated as regards their pharmacological actions, their use is limited amongst the profession. The whole of this subject should be looked at from the scientific as well as business point of view.

THE FALL OF INDIAN MUSIC.

Indian Music is to-day fallen on evil days. Why? These are the

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causes found by M. S. Ramaswamy Aiyar and stated in a contribution to the *Hindustan Review* :—

9. What is the cause of the downfall, of Indian music ? It is threefold, viz.,

1. the Jainic Puritanism, in ancient times,
2. the Islamic Puritanism, in mediæval times,

and 3. the Bureaucratic Sterility, in modern times.

The first two causes were short-lived; and when they were removed, music resumed its usual course, though not with its pristine glory. But when the modern times gave us, as though permanently, a most unnatural system of education, calculated to manufacture westernised and overfed aristocracy on the one hand and hybrid and underfed middle class on the other, chill penury was made to stare in the face of famished masses. In the case of most of the landed aristocracy, false ideals and tastes led—rather misled—them to have recourse to French palaces with American fittings, gorgeous gramophones or mechanical pianofortes, all under the presidency of Colonial ladies, The whole of their conversation now generally runs upon "high life with pictures, Shakespeare and the musical glasses." Never does it occur to them the Roman music, as such, did not show its head up, because the luxury-loving Romans were easily satisfied with the music of the Greek slaves. Mommsen, for instance, observes: "Music passed over from Hellas to Rome, only to enhance the decoration of luxury." Gibbon is more precise when he writes: "The libraries were secluded, like dreary sepulchres, from the light of day; but the harmony of vocal and instrumental music was incessantly repeated in the palaces of Rome, where the sound was preferred to the sense and care of the body to that of the mind."

The fatal taste for everything western has infected the hybrid, underfed middle class too. Dr. Ananda K. Coomaraswamy graphically described the position thus: "Speak to the ordinary graduate of an Indian University of the ideals of the Mahabharata—he will hasten to display his knowledge of Shakespeare; talk to him of religious philosophy—you find that he is an atheist of the crude type common in Europe a generation ago; talk to him of Indian music—he will produce a gramophone or a harmonium and inflict upon you one or both; talk to him of Indian dress or jewellery—he will tell you that they are uncivilised and barbaric; talk to him of Indian art—it is news to him that such a thing exists; ask him to translate for you a letter written in his own mother-tongue—he does not know it. He is indeed a stranger in his own land and (what is worse !) feels proud to be hide-bound in that impervious skin of self-satisfaction which enabled that most pompous and self-important philistine Lord Macaulay, to believe that a single shelf of a good European Library was worth all the literature of India, Arabia and Persia,"—an ill-conceived judgment happily reversed to-day by the appellate Court of Fact. The remarks of the Doctor on Music are—I emphatically assert—of universal application throughout India.

Our present mania for the European gramophones, pianos and harmoniums, even Europeans, not to speak of our kith and kin, deeply lament. Mr. Clements of the Bombay Civil Service, who has made a special study of Indian Music, entertains no clemency whatsoever for piano or harmoniums but positively hates them and observes: "Whoever advocates the use of tempered instruments is quite unaware of their utter inadequacy to give any idea of *Indian* intonation."

Another careful European student of Indian music, Mr. Fox Strangways, was struck with the strange ways wherein the Indians admired and adopted the western instruments and indignantly remarked: "If the Rulers of Native States realised what a death-blow they were dealing at

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their own art by supporting or even allowing a brassband; if the clerk in a Government Office, understood the indignity he was putting on a song by buying the gramophone which grinds it out to him after his day's labour; if the Muhammadan singer knew that the Harmonium with which he accompanies was ruining his chief asset, his musical ear; if the girl who learns the pianoforte could see that all the progress she made was a sure step towards her own denationalisation;—they would pause before they laid such sacrilegious hands on Saraswathi."

The Remedy.

And the remedy? The same writer continues:—

Be the causes of the downfall of our music what they may—can we now resuscitate it? That is the question we care now vitally concerned with. Everywhere we see unmistakable signs of awakening in our country. We are on the threshold of a new era. The Indian Politician is abroad. He has found out that the Goddess of Music has not been clipped of her wings but only hurled into a deep pit which her three great oppressors viz. grinding poverty, godless education, and appalling ignorance revengefully guard and prevent her escape. He has determined to drive those oppressors and see the goddess once again emerge out with her wide-spread wings and shine in all her radiant glory. But, be it noted, that nations are made more by artists and poets than by politicians and that, if the former contribute to sustenance, strength and growth of a nation, the latter take upon themselves the duty of warding off the weeds that would otherwise tend to stunt its growth. "To many persons it may seem incredible that the consistence of Japan's statesmanship and strategy, the far reach of her military plans, the splendid qualities of her soldiers and sailors, the steadiness of nerve, the accuracy of aim, the coolness of advance, the deadliness of attack, the self-immolation of regiments at the word of command—are not unconnected with the fact that she alone among living nations has a truly national art, that her senses are refined and her taste fastidious and that even her poor men love beauty and seee their pleasure amongst flowers. This is a hard saying, but the truth is even so."

Leaving then to the politicians the hard task of warding off the weeds of godless education and grinding poverty, not unaccompanied by appalling ignorance the Indian Artists must feel it a sacred duty that they should, at this juncture, come out with Books on Music, knit the theory and practice thereof together and see that the finest of the fine arts once again rises to the pinnacle of her glory. Do you entertain any doubt regarding the efficacy of timely-written books? You will do well to remember that Rousseau's *Social Contract* produced a political revolution in France; Burke's *Reflections on the French Revolution*; an economical revolution in England; and Krishna's *Bhagavad Gita*, a spiritual revolution in India. Hence a timely-written Treatise on Indian Music will, I dare say, produce a Musical Revolution in our country. The time is now ripe. As I said, the Indian politician is abroad, and he wil ere long drive out all the obstacles to the free growth of our music. Meanwhile the Indian artists, I repeat once again, should come out with Books on Music. Are such artists wanting in our country? Surely not. Only they, like Haridas Swami of Brindavan, require a little goading, in connection wherewith there hangs a tale.

A SAYING OF AMENEMAPT

The Indian Messenger takes from *the Inquirer* the following quotation from Amenemapt, the wise man of Egypt:—

"Leave the wicked man to the hand of God, for it may be God's will to show him further mercy,

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Pay good heed to God Almighty; better are six feet of ground which God hath given thee than 5,000 feet obtained by fraud.

Say not that evil is not permitted, whilst thou thyself art stirring up strife.

If evil appertained to God, he would stamp it with the seal of his blessing.

Though the tongue of a man steers the boat, it is God who is the captain thereof.

Truth is the porter of God.

Though a man prepares the straw for building his house, God is the architect. It is he who throws down and builds up.

Lie not in bed whilst the dawn is breaking; the dawn and break of day, to what can they be compared (for beauty) ? The man who knows not the dawn, to what can he be compared ?"

THE ARYAN INVASION A POLITICAL MYTH.

Foreign historians of India, and in their imitation, their Indian pupils as well, whose knowledge of history is derived from their credulous belief in the unerring accuracy of the European savant's research, have till now been endeavouring to make out that the Indian inhabitants of India have been foriegners here in some very distant past. Aryans, they say, came from the North-West, as later came Turks and Afgans. Very whimsical arguments and evidences are adduced to prove this, to them, a well-established fact of history. The following, therefore, appearing in a leaderette in *The Indian Social Reformer* for April 28, will be read with interest by those who have never accepted the statements of the so-called savants of Europe at their face value :—

"The Aryan invasion" theory which has hypnotised even some of our shrewdest thinkers and which more than any other is responsible for perverted and debilitating views of Indian history, is only now beginning to be seriously questioned. Few Indians have ventured to doubt the theory though it is one without any support in and indeed, totally opposed to Indian tradition. Some daring spirits here and there have hinted that the theory could not be true, but these were regarded as reactionaries who were inspired by a perverse patriotism to go against what was considered to be an established fact of history. An English scholar, Mr. F, E. Pargiter, a retired member of the Indian Civil Service and a late judge of Calcutta High Court, has recently entered the list boldly claiming for Indian tradition a higher authority than for the conclusion of European Orientalists. Mr. Pargiter has anaylised the evidence adduced in favour of the "Aryans' invasion" from the North west, with his trained judicial mind and his conclusion is that all the evidence points to an emigration from India and not an immigration into India through the North-Western passes. Mr. Pargiter writes :—

Indian tradition knows nothing of any Aila or Aryan invasion of India from Afghanistan, nor of any gradual advance from thence eastwards. On the other hand it distinctly asserts there was an Alia outflow of the Druhyus through the North-West into the countries beyond, where they founded various kingdoms and so introduced their own Indian religion among those nations.

This theory explains every fact which the "Aryan invasion" theory was invented to explain, and it has the gret recommendation in its favour, that it is entirely consonant with Indian tradition. In Lessing's noble play "Nathan the Wise" the importance to a people of their own traditions is very tersely indicated. Saladin asks Nathan how a man of his calibre can be content to follow the faith of his forefathers unmindful of the lessons of history. Nathan rejoins by asking : "What is history ?" History too must be taken

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upon trust—is it not? Why should he (Nathan) assume that his forefathers deliberately handed down false history to deceive their descendants? What are the facts which the "Aryan invasion" theory was intended to explain? There is only one, namely, the similarities between Sanskrit and Greek and Lattin. Max Muller's generalisations from language to race were proved even in his own lifetime to be untenable. Many races speak languages which their forefathers did not speak. In the competition between languages, the one which as Mr. Phiroze Sethna realistically phrased it last week in the Bombay Municipal Corporation, has the longest mileage and the largest rolling-stock, gets the better of its competitors. For proof of this we need not go beyond India. Against this single fact there are several others which only an emigration outward from India can satisfactorily explain.

Another point of national interest has reference to our Parsi countrymen. The current theory, based upon that of an Aryan invasion from the north-west, is that the ancestors of the Parsis and the Brahmins lived together in Iran for some centuries and then quarelled over certain social questions and that the ancestors of the Hindus moved southward and settled down in India. The implicit acceptance which this theory enjoyed was shaken by the discovery in 1907 of an inscription in Asia Minor in which the names of the Vedic deities, Mitra, Varuna, Indra, and Nasatya occur. The inscription records a treaty between a Hittite king and a king of the Mitanni found at Bogkeni. The date of the treaty has been fixed reliable about 1,400 B. C. Who were these Mitani who worshipped Indra, Mitra and Varuna, and how and when and why did they go to Asia Minor? European scholars have been rather hard put to reconcile the presence of Vedic worshippers in Asia Minor in 1400 B. C. with their theories of the Aryan invasion of India and the composition of the Vedas. Mr. Pargiter shows that the only satisfactory explanation of this is afforded by the Indian tradition of the outspread of the Druhyus —a branch of the Ailas—beyond the north-west of India in about 1600 B. C. He goes on to suggest that the Iranians themselves may have been an offshoot from India for, he remarks, the outspread from India can not only account for the existence of God with Indian names but may also have led to the genesis of the Iranians. One of the first Indian scholars to throw doubt on the accepted theory of an "Aryrn invasion" was Professor P. T. Sirinivasa Iyenger, now of St. Joseph's College, Trichinopoly. His bright little book on "Life in India in the Age of the Mantras" opened a new era in Indian scholarship. After a long interval, he has produced a "History of India" which, especially for the early Hindu period is better than any other book of similar scope and size that we have come across. Mr. Iyengar adopts Mr. Pargiter's conclusions and suggests that the fire-cult taken to Bahlika (Bactaria) by Indian emigrants was, in later time, modified by the reformer, Zarathustra. "This Aria cult" he writes, "flourished in Persia for 3,000 years and was then brought by the Parsis to India, which gladly gave refuge to its ancient step-child." We have never been able to believe in the legend that the Parsis Pilgrim Fathers did not know where they were going when they launched their Mayflower at the time of the Mohammadan invasion of Persia.

PARDA IN ISLAM

Prof. A. M. Maulvi, in a contribution of his to a recent issue of *The Indian Social Reformer*, has the following remarks as regards *parda*, as sanctioned in Islam :—

"Tell Muslim women: cast not indiscreet glances on the opposite sex, preserve chastity, cast a veil on your breast and expose not your ornaments to non-Muslims *i. e.*, persons other than your husbands, fathers, brothers etc."

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The last verse is the nucleus of purdah system in Islam which I wish to discuss at length later on. One can easily see that non-exposure of one's ornaments to strangers is not an end in itself but only a means towards an end, which is chastity. There is no need of observing the purdah system if it cannot give a sufficient guarantee for chastity : on the other hand, if chastity could be enforced by moral education or any other means without having recourse to the system of seclusion, nothing would be more absurd than shunning such measures on the ground that they interfere with the purdah.

The Muslims of the past could boast of innumerable women scholars of Nazhun's type who shed an ineffaceable lustre on the land of her birth by distinguishing herself in history and literature ; and Zeinab and Hamda the daughter of a bookseller who were both excellent poetesses and thoroughly versed in all branches of science and literature. It is said that the love of learning brought these sisters into the company of scholars with whom they mixed on perfect terms of equality with great composure and dignity, and nobody could accuse them of forgetting the rules of their sex.

Among the Arabs women were and are still free. Among the republican Muslims the women moved freely in public, attended to the sermons of the Caliphs and the lectures delivered by Ali, Ibn Abbas and others. In Turkey women do put on light comfortable veils unlike the suffocating veils used by Indian Muslim women, and they move about with perfect freedom and are not immured for ever. The system of perfect seclusion in vogue among the Indian Mahomedans is not the outcome of the precepts of Islam which is one of the most democratic creeds existing in the world, but one of the evil consequences of the misrule of some of the voluptuous Moghul kings who were never ashamed to multiply their harem by marrying any girl who was reported to be unusually handsome. Even a popular ruler like Akbar was not free from this vice. Having hundreds of wives and being naturally jealous of them, these rulers never trusted their wives, kept them always under lock and key, guarded them with greater care than their treasures and thus set a bad example to their coreligionists who were mostly fresh converts and were bound to imitate their rulers and look upon them as perfect models of Islam.

POLYGAMY AS SPOKEN OF IN THE KORAN

As regard polygamy, the learned professor writes as follows :—

Again, with regard to polygamy the non-Muslims are of opinion that Islam has degraded woman and has deprived her of her legitimate place and function in social life by inculcating polygamy. It is a mistake to suppose that polygamy took its birth in Islam and that all the Muslims are polygamists. It existed much before Islam, and the pre-Islamic Arabs, the Chinese and the Persians were all polygamous to a startling extent. There were many Arab chiefs who had more than fifty-five wives. As Islam was meant to be a religion not for a few chosen creatures but for all classes of people of all times, it tolerated the system by limiting the number of wives to four with restrictions which are a sufficient check in the case of an ordinary man. The only verse in this connection found in the Koran is as follows :—

" Marry such women as seem good to you, two, three, or four ; but if you fear you will not do justice between them then only one." At the end of the same chapter " on woman" full light is thrown on this passage by another verse which runs as follows:—

" And you can never do justice between women." It is quite evident that the Koran is not in favour of marriage with more than one wife. Undue advantage seems to have been taken of these verses by some of the licentious men in our com-

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munity who have supplied the non-Muslim with materials to scandalise Islam. It is a fact that our Holy Prophet himself married more than one wife but history explains that his motive in marrying more than one wife was not to satisfy his lust but to connect himself with some of the influential tribes of Arrabia who were often at war with one another and whose family feuds almost came to an end by such marriages. Besides the just and the extraordinarily fair and equal treatment he gave to each of his wives alike and the remarkable way in which he divided his affection between them with almost mathematical exactness, it is not given to every ordinary man to imitate. Our Koran justly says "It is not within your power to do justice between women." It requires no extraordinary talent to understand the true position of woman in Islam provided one bears in mind that "Islam should always be traced in books and the true Muslims in graves."

WAS BUDDHA AN ATHEIST?

We have always held that Buddha was never expressly an atheist. In his own writings there are found evidences of his having subscribed to some of the very important tenets of the Vedic faith, though for some reason or other it did not suit him to emphasise those tenets. To him morality appeared to be more essential than this philosophic doctrine or that. Dr. B. Barun, in a lecture of his, delivers himself in the same strain.

Buddhism in its Philosophical or metaphysical aspect is a *vibhajya vada*, or doctrine of analytical method. The characteristic expression of this critical attitude is *Ehi Pasya* i. e., 'Come and see.' The position of the Buddha seen in this light could not but be that of an *akhyatara* the expounder and that of a *marga-desaka*, or one who points out the way. This attitude of the Buddha has been well-expressed in the course of his last address to Ananda, exhorting him to be zealous in his own behalf, to devote himself to his own good, to be earnest, to be arduous, to be intent on his own good, to be his own light and own refuge, and lastly to depend on none but himself. And why? The reply is—for the *dharmas* which he presented after having realised them through a higher illumination were very deep, difficult to see, hard to understand, sifting all doubts and set-beliefs, excellent, lying beyond the ken of mere logic, subtle, to be inwardly felt by the wise by their own exertion. The *Dharmas* or truths referred to, have no time relations, relating as they do to the method or thought-order, that is essentially subjective or logical device of interpretation. Strictly speaking, in Buddha's teaching there are no truths in the sense of affirmations or judgments with regard to the relations as commonly noticed among all happenings, material or mental. Such truths, whenever they occur, are introduced by way of illustrations of the thought-order, and the main cause of divergence of opinion about Buddha's attitude towards reality among the different Buddhist Schools of thought, pre-Asokam and post-Asokam is that each School was inclined either to over-emphasise the importance of these illustrative truths or to minimise the same. As an actual illustration of what is meant by a *Vibhajya vadin*, we may recount here the occasion when asked by a contemporary wandering teacher whether he held that the householder was superior to the recluse or he maintained the opposite position, the Buddha simply said thas he was a *Vibhajya vadin*, whereby he distinctly meant that a general statement either way could not rightly be made, for there were cases where a householder was an ethical or intellectual superior to a recluse and cases where the recluse had the advantage over the householder. So every case must be judged

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by its own merit; although it was easier for a person freed from worldly fetters to pursue the ideal. On accepting such a logical position he could not surely define a householder or a recluse with reference to the externals but simply with reference to certain essential, moral, and spiritual qualities such as *Sama*, *Uparati* and *Titiksha*, which any person, man or woman appearing in any garb, could cultivate. Similarly when he was asked to pronounce his judgments on the views as to such ultimate questions as whether the world as a whole was eternal or non-eternal' partly eternal or partly not, finite, infinite, both or neither, he had to give the same reply. On all these questions, his attitude was of non-committal. To be consistent with his own position as a *Vibhajya vadin*, he could not well have stated his position in terms 'Yes' or 'NO'. Apparently he did not like to be busy with these questions but if he confessed his inability for he admitted the possibility of these questions and his position would have been identical with that of the great sceptic Sanjaya, who has been scoffed at as a cowardly eel-wriggler, having nothing positive to assert. Thus to be true to his own standpoint, as well as to be in a position to express a definite opinion, he had no other alternative but to formulate the questions differently *e. g.*, not whether God or soul exists but how it is that men come to conceive the idea of God and soul.

Another incidental question involved in the position of a *Vibhajya vadin*, is—what would be his attitude towards the advocacy of particular views—"That this is the only truth and everything else is false or foolish"—is an attitude of mind which is to be characterised as dogmatism, narrowness of sophistry, that fetters a man to a set-opinion and makes him blind to other positions, the possibility and cogency of which he can not even conceive of. The philosophers or sophists clinging to particular points of view, have been compared to a group of blind men forming an idea of an elephant by a particular part of the animal felt by their hands, some characterising it like a pillar, some like a winnow, some like other objects. Much of our worldly accriminations, misunderstandings, quarrels and disputes, is simply due to a blind natural adherence of a set opinion for its own sake and our utter inability or disinclination to put ourselves into others' point of view and judge all points of views from a *Lokottara* or transcendental standpoint, which admits of no personal, local temporal or practical consideration. This critical and disinterested outlook has found a very excellent practical expression in the following pronouncement. "If O Bhikkus, others speak in dispraise of me, or of you, or of our system, you should not on that account feel insulted, bear malice or suffer heart-burning or cherish ill-will. If you do so, that will stand in your own way, in that you will fail to understand whether their remarks are well said or ill said. Similarly if others speak in praise of me or you, or of our system, you should not on that account be filled with joy, unduly elated and jubilant. If you do so, that too, will stand in your way, in that you will fail to discriminate whether what others say is well said or ill said. In either case, your concern should be to judge their words properly false as false, truth as truth, and point out saying "for this reason or that, it is untrue, not a fact, it is not so, not amongst us, for this reason or that it is true, a fact, it is so amongst us."

THE PURANAS.

The following are a few exerpts from a paper contributed by V. Venkatachalla Iyer, Esq., B. A., B.L., to the *Quarterly Journal of the Mythic Society*, Bangalore. The conclusions that the writer has arrived at are a

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result of his long study and research in Pauranic Literature. The reader will be surprised to find that in his estimate of the Puranas he generally agrees with the scholars of the Arya Samaj.

Some of the major Puranas appear to have been re-written with the set purpose of promoting ignorance and superstition: of enslaving the minds of the people: of preventing them from thinking for themselves: and of giving currency to a religion, which, while pretending in theory to contain within itself the principles of emancipation, is calculated in practice to sink one deeper and deeper into the quagmire.

Fetish worship of every sort is advocated with energy and earnestness.

An elaborate programme of debasing rites, one at least for each day of the year, has been worked out.

It is a mixture of light and darkness, of dirt and deity.

The idea of godhead is such as is embodied in an anthropomorphism of a gross character.

The gods are many and varied, but they have one common characteristic of being morally depraved. Each god has his cult which is diligently inculcated.

The parables constructed to point the moral for instruction are often of a character calculated to make a strong appeal to criminal impulses and instincts. They are at times of a revolting nature, while the levity of the mental equipment of the authors is laid bare in its true colours. Criminal ideas, as passing fancies, may not always provoke criminal acts. But, when treated in a realistic fashion and worked into a theme, they are capable of stiffening the criminal impulses of some sections of mankind. It is like the danger that has been found associated with cinema films of a certain class which the administrations of some countries have found it necessary to proscribe.

A Brahmin youth violates his newly widowed mother and that at a time when she is in an untouchable condition. His sin is washed away by bathing in a certain stream.

A libertine dressed in dandy fashion wends his way to a harlot's house. On the road, the Pansupari held loosely in his hand drops down into a gutter. The man cries out कृष्णार्पणमस्तु. For the merit of this pious wish he obtains the royalty and throne of India.

Happiness in this world, and beatification in the next, are easily obtained by bathing in streams, by fetish worship, by feasts, fasts, and not necessarily by prayer, penance or tribulation. For theology in the higher sense, something that would bring comfort to the mind or peace to the soul, something to ennoble, something to visualise the better self, it is not to those books that we should turn.

Bhagwatapurana the work of Vopadeva.

Dr. Wilson says that it is the opinion of some that the (Srimad) Bhagavatapurana is spurious and modern. There is no doubt that such a belief exists among the better informed of the Pandit classes.

It is supposed to be the handiwork of a great scholar, Mahamahopadhyaya Vopadeva, the author of the Mugdhabodha, a system of Sanskrit grammar, which has successfully eliminated many of the complications of Panini's science. He is believed to have been the Laureate Sanskrit Pandit at the court of one of the kings of the Muhammadan dynasty of Gulbarga; the Srimat Bhagavatam is, as to much of it, a copy of the Devi Bhagavatam.

Bhavishya Purana.

I wish to add that perhaps the most modern of all the Mahapuranas is the Bhavishya Purana, in which Vyasa foretells the future to the end of th

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eighteenth century A. D. We find embodied in this Purana, extracted from the Christian Bible, short accounts of the ante-diluvian patriarchs from Adam and Eve., the narrative of the deluge, the part played by Noah (written नूहः) in it, and the subsequent re-peopling of the earth by Noah's generations.

The history of the Afghan and Mongol dynasties who ruled at Delhi and of the great Moguls is duly 'foretold.'

Tamerlane or Timur Lung is named Timira Linga.

Sivaji (written as Sevaji) and Aurangzeb are duly noticed, as also the incursions of Nadir Shah.

The story of the rise and development of the East India Company's settlement at Calcutta, and of Government under Parliamentary authority is also part of this revelation.

Vyasa's opinion upon any subject must indeed be of unquestionable authority. It is only proper, therefore, that the reader should know that, according to this revelation, the British race was directly dscended from an ancient stock of monkeys who had obtained great boons for the future from Rama, the Avatar, as a reward for the assistance rendered by them to him in his expedition against Ravana.

Whether the author of this Puranal intended it as a burlesque or not, we must admit that he had a lively sense of humour. He entered into the spirit of this branch of literature. He knew that the Puranas of the earlier periods were quite as much fabrications as his own. The regard that he had for these works is reflected in his own methods of treatment. Apart from that, his purpose was to bring Vyasa up-to-date, and we cannot say that he failed in his endeavour.

Puranas Borrow from Each Other.

It is not ordinarily known that huge frauds have been perpetrated in the manufacture of these works. Chapters of great number and great length are found plagiarised from one Purana and incorporated entire into another, *verbatim et literatim*.

It may appear strange and paradoxical that each one of two Puranas should copy from the other. And yet it is true. This happens when a portion of Purana A is copied into Purana B. and some other portion of Purana B is copied into Purana A.

The writer appends to his article a long list of identical passages and sections met with in more than one *Purana*.

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"THE POET'S HOME-COMING"

By Rajani Ranjan Sen

(From the Bengali of the late poet Nobin Chandra Sen)

My Mother—

How long it is I cried to thee—how long !
What an age has sped by since —my mother !
—And thee my welling heart now calls again
As thy beauteous frame mine eyes behold !
Thy curly tresses in the rippling sea
With the tiara of crescent hills crowned,
And wreaths of streams twining thy lovely limbs, My Mother :

Upon the blue ocean's strand,
Above the high Vindhya's crest,
Or on fair Jumna's lovely bank,
Or by the broad Jahnavi's side
—In far off climes with teary eyes
To thee my thoughts have ever turned, My Mother :

No solace cooled my burning heart
—Like a thirsty birdie thy child
Now longs his wan face for a while
Upon thy kindly breast to lay
And the balm of thy love imbibe. My Mother !

In youth's first days my heart's deep fount
Its vital runnings copious poured
In adoration at thy feet ;
At eve of life now dry it runs. O clad-in-green My Mother !

The crimson fluid, now my heart it lacks,
Glistening dew-drops on my eyelids hang
—Cool and pure and ever hallowed by love.
These thy lotus feet shall hence ceaseless love
Till mine eyes droop in everlasting sleep
For time eternal on thy loving breast. My Mother.

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THE SONG OF CELIBACY.

(Principal Dr. Balkrishna M. A. Ph. D. Econ, London).

The song of celibacy in the Atharva-Veda is probably the most compact, illuminating, and profound hymn in the whole Vedic Literature. But it has been so murdered by European Scholiasts and even scholars that one is rather repelled by the inconsistent, incongruous, illogical, erratic ebullitions of the poet's fancy than in any way attracted and ennobled by the highly spiritual and rational elements illuminating the whole piece. I do not claim to be a scholar of the Vedas, but I have certainly been keenly interested in the Vedic Literature for the last seven or eight years. The available English translations for the most part present Vedic Hymns as so many unconnected riddles or enigmas which are made more obscure by the strictly literal translation attempted by the western scholars. It has always been a riddle to me why such a simple thought has not flashed into the penetrating intellects of these great scholars that after all a poet expressing his thoughts in the rich imagery of a poetical language even, must have a theme and that each line mast be clear in meaning if not grand in concept. The reader will, however, seek in vain for any sense in the Vedic Hymns as they have been rendered into English by most scholars. I take for the present the song of celibacy and render it into English as I understand it. The desired meanings have not been given to the words by me but only a little change in interpretation has made the whole hymn sparkle with deep sense and pregnant with exceptionally considerable spiritual merit. Certainly the poets were not mad men or children who knew not how to express themselves in their own language. However, the unconnected meaningless hymns have been represented as ravings of lunatics or babblings of primitive humanity.

That they are neither ravings nor babblings but psalms full of sense, significance and spirituality will best be shown by the 'Song of Celibacy' of the Atharva Veda, Book XI sukta 5.

Song of Celibacy

A Brahmchari roams at will in both the worlds (in his meditation). In his case all the senses become centred in mind. He upholds(by the divine power of brahmcharya) the earth as well as the sky. Ath. XI 5. 1.

The fathers, saints, and even seers, individually follow the true Brahmchari nay. innumerable (6, 333) Gandharvas or Veda Sigers go after him. He satisfies all the wise men with his penance 2.

The preceptor while initiating a Brahmachari takes him in his womb. He bears him in his belly three nights. Then the wise gather unto him to see him when he is born (from his preceptor's womb) 3.

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1. Of योगः चित्तवृत्तिनिरोधः—Yoga is the restraint of mental modifications.

3. This is the initiation ceremony and second birth of the child. Hence the initiated are called द्विजन्मा Men of Second Birth.

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He satisfies the terrestrial, solar and spatial or stellar regions, with his fuel of the sacrifices like Agnihotra, etc. A Brahmachari fills the worlds with fuel—(sacrifice), sacred girdle, toil and penance 4.

The Brahmachari was born from Brahma in the beginning, i, e, the very first teacher of the Veda was Brahmachari. He clothing himself with heat (Splendour born of his penance) stood up by his power of penance. From him was born the Vedic knowledge, the highest Vedic lore and the wise men together with immortality (because it can be attained by Vedic studies and realization of Brahma,) 5.

The Brahmachari goes kindled with Agnihotra, clothing himself in the black-antelope skin, consecrated, long bearded.

He goes, (through Psychic power,) at once from the eastern to the northern ocean and having firmly grasped the worlds, he (in trance) repeatedly cries out aloud that he has realized them. 6.

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4. Agnihotra, the wearing of Mekhla and the observance of strict celibacy and regular study have been declared necessary here.

5. He taught Vedic lore to the wise men and thus gave them the means to achieve immortality.

6. The Brahmacharies are to live the simplest life, wear skins and avoid all methods of embellishing the body.

The Brahmachari manifesting or realizing through his psychic powers, the Brahman, the breaths, the world, the protector of the world who is the most exalted and the resplendent one and having become an embryo in the womb of immortality, like Indra, the sun, certainly shatters the Asuras—the clouds of evil or men of evil disposition. 7.

The preceptor fabricated both these envelopes—the wide profound earth and sky. Them the Brahmachari defends with his penance or asceticism. In his case, the senses become centred in mind. 8.

The broad earth and the sky too, the Brahmachari first brought or obtained as alms (in his meditative Agnihotra) having made them fuel he worships. In them are represented all the worlds, luminous and non-luminous. 9.

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7. Lord Krishna has thus described the Asuras in his immortal song of Bhagvad Gita :—Asuaras know neither right energy nor right abstinence, nor purity, nor propriety, nor truth..... ....Holding atheistic views these ruined selves of small understanding, of fierce deeds come forth as enemies for the destruction of the world XVI, 7—9.

8. The preceptor imparts to the student the knowledge of both heaven and earth i, e., both secular and spiritual sciences are taught to Brahmacharies. Perhaps the verse is meant to teach the students cosmopolitanspirit i.e. to look upon the world as their family.

9. The Brahmachari realizes the true nature of the material world. The knowledge is not monopolized by him for the deliverance of his soul, but is imparted by him to others.

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The two treasures Para and Apara Vidyas of the Brahman are deposited in the secret, the one this side, the other beyond the back of the sky. Them the Brahmachari defends by means of his penance. Knowing the whole of that he makes Brahman his own. 10.

The one on this side, the other away from the earth, the two fires (kinds of lore) come together between the envelopes i e, the whole universe is comprehended through them, Upon them are set firm the rays of inspiration, upon these the Brahmchari rests by means of his asceticism. 11

Roaring on all sides and thundering the one who is agile in light and darkness, the resourceful one had brought on the earth a great virile member in his own personality. The Brahmachari pours seed upon the surface of the earth, by that live all the sentient beings of the regions. 12

In the fire, in the sun, in the moon in the wind, in the waters, the Brahmachari puts fuel—utilizes them all for the benefit of the world. Their gleams go separately in the cloud their butter or essence becomes man rain and waters. 13.

The preceptor becoming like death, Varuna, Water, Moon, herbs and milk grew to be like and swift and strong rain clouds. Through these was felicity attained by the Brahmachari. 14.

The preceptor becoming Varuna monopolized all the butter (provisions) in the house and whatever more he desired for Prajapati, that the friendly Brahmachari furnished to all his people from his own self. 15.

The preceptor should himself be a Brahmachari, so should Prajapati—a king be a Brahmachari. Such a Prajapati rules in the best way. The ruler (through Brahmacharya) becomes the controlling Indra or a Sovereign Lord 16.

Through the asceticism of Brahmacharya a ruler can well defend his kingdom. A preceptor too seeks a Brahmachari with his own celibate life. 17.

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10. The two sorts of knowledge by which all is known have been named as Apara and Para in the Mundaka Upanishad. In the Apara are included the four Vedas and their six Angas, while by means of Para the Immortal or the Ageless is realized.

14. Various aspects of a teacher are distinctly brought out by comparing him with Death, moon, etc., In the end he is described a happiness-showering cloud.

15. It may refer to the fees given by the Brahmachari at the consummation of his studies.

16—17. As example is better than precept, the teachers and the rulers have been ordained to lead the life of Brahmacharya.

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By means of Brahmacharya—celibate life, a girl wins a young husband, a draft, ox and a horse strive to gain food through self control. 18.

The wise killed Death itself (prolonged their lives) through the asceticism of complete celibacy. The victorious ruler won happiness for the wise only through celibacy. 19.

The herbs past and future, day and night, the trees, the year together with the seasons—they are born of—explained by the Brahmachari. 20.

The earthly and the heavenly things, the cattle be they of the forest or of the village, the wingless beings and those that are winged—they are born of—explained by—the Brahmachari 21.

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18. Marriages of young couples have been ordained here. The sexual control of the animals has been extolled, so that man the paragon of nature may learn to rise far above the animal level.

19. Prolongation of life and achievement of success in the world depend upon the control of the senses.

20 Vegetable and animal kingdoms nay, the entire world are based upon celibacy.

Whatever beings created by Prajapati—the lord of the world bear breaths in their bodies, all of them are protected by—the Brahma-spiritual power genera ted in the Brahmachari 22.

Such a Brahma-spiritual power of the saints, impelling, unconquered-brilliant, goes about (in the universe), From it was born the Vedic knowledge the highest Vedic lore and the wise men together with immortality, because it can be attined by Vedic studies and realization of Brahma 23.

The Brahmachari holds the brilliant Brahma—the spiritual power. In him all the senses are woven to-gether (through yoga). He generates or controls breath and expiration, distributive breath, speech, mind, heart, spiritual power, and wisdom. 24.

Sights, hearing, glory put Thou in us, food, virile power, blood and a good stomach confer Thou on us 25.

All these the Brahmachari made good by performing penance on the surface of the water of the ocean of learning. He, (having taken his bath), finished his studies and having brown and yellow colour shines much on the earth as a Snataka. 26.

22—24 The extraordinary development of psychic powers has been extolled here.

25. The Brahmchari becomes a man *par excellence* through his asceticism, meditation, and vast knowledge and therefore he shines upon the earth like a luminary.

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THE WORLD OF BOOKS.

इँगलैंड का इतिहास [प्रथम भाग]

By Prannath Vidyalankar. Published by Ganga Pustak Mala 29—30 Aminabad Park, Lucknow. Price Rs. 2-0-0. *Bound* 2-8-0.

The book is a rapid survey of events of English history from the earliest times till the end of Elizabeth's reign. The author has taken great pains in studying original books on the subject, from which he has been able to compile a really useful book for the Indian reader. As a writer of Hindi he requires no introduction at our hands, as several books written by him are already in the market. His language is simple and his style natural. In India to-day the study of English history is specially necessary. That history is a history of a continued struggle for liberty. Different as the Indian ideals of liberty may be from those prevalent in England, our English masters will give way only when approached in their own peculiar way. Blind imitation of English methods of war and peace may not benefit us, yet an aquaintance with the means employed by our rulers in their own struggle against autocracy may be found of use. The lot of England and India is at least for sometime to come, cast in the same groove. No matter what kind of relation will bind the two countries, they have, for good, for evil, to work together. For this reason, too, a perusal of the history of England is essential. We welcome therefore the publication issued by the Ganga Pustak Mala and recommend it for study by Indian readers.

नन्दन निकुञ्ज *By Shri Chandi Prasad Hridayesh B. A. Published by Ganga Pustak Mala Price Rs.* 1-4-0 *Bound Rs.* 1-10-0.

This is a series of word-pictures' A few stories, imaginary most of them have been narrated in a most charming style. The excellence of the writer is not in the plot of his tales, but in the presentation of natural scenes, into which he infuses some of his own idealistic liveliness. Each scene depicted by him appears, as it were, to speak and think. Behind mute nature the author sees some psychic intellectual working. The world to him is a world of feeling, of emotion. The beauty of Hridayesh's emotion is that though steeped in love of beauty, of which the principal factor of course is the maiden beauty of woman, it never leads to objectionable pleasures of passions. His love is elevating. He adores his loves as he adores his Mahadeva. He catches sight of some seductive face in the hour of his prayer, and is not ashamed of owning his yearnings for a repetition of the same peep to his God, whose blessing he asks for success in his amorous undertaking. His worship of female beauty is a part of his worship of God. It is a divine emotion, a divine felicity, a divine bliss. In his conversations too some of the bits that his character deliver are very clever. At places a sentence uttered by an apt person at an apt moment gives quite a new meaning to the whole tale. The reader sits startled as in that sentence he finds the key to the strange situation.

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पूर्व भारत *By Misra Brothers. Published by the above Pustakmala Price As.* 14.

This is a dramatic piece, the plot of which has been taken from the Mahabharata. The writers have won a richly deserved reputation in the world of Arya Bhasha literature. They are poets, essayists, critics, and what we discover from this production of theirs, dramatists too. The language they have employed in this book is quite suited to the subject of the book. In case this attempt of theirs is appreciated, they promise to bring out another piece in continuation of the present one

द्विजेन्द्रलाल राय *By Rup Narayan Pandey Price As.* 4.

The same Ganga Pustakmala is bringing out a series of small biographies priced at as. 4. each, the series being therefore named Chavanni Chitravali. i.e. Four Anna Biographies. The biography under review is of the well-known dramatist of Bengal, whose works in Bengalee are masterpieces of Bengalee literature. The story of his diligence and grit in which lies the secret of his success as a writer will serve as an object lesson for young aspirants after literary fame. The writer has tried to criticise his works to the extent it was possible within the compass of a small four-anna biography.

EDITORIAL REFLECTIONS.

AGGRESSIVE HINDUISM

Janmabhumi is a weekly issued from the Andhradesha. It is an out and out non-co-operater journal. Its comments are always charcterised by a lively vien of subtle humour. It is known, too, for its refreshing originality in the view it takes of things and events. Of non-violence it appears to have taken perhaps an over-dose. It is common experience of history that movements that have over-emphasised this principle have in the long run slipped down into sloth. They begin with a condemnation of war and end with the extinction of the warrior spirit. By dint of pious hopes and humanitarian intentions they hope to work out the redemption of the world, a futile hope. Truth is sometimes bitter, to the tongue of the utterer no less than to the palate of the hearer. Difficult to gulp down, it is no less difficult to say out. A reformer, by his very campagin of reform, stirs up opposition. Christ is believed at the present time to have been the embodiment of non-violence. Yet the Christ who teaches his followers to turn the left cheek to the tyrant who has already struck their right one, was not a wit loth to use a scourge, when that instrument of reform was needed, whereby "Christ's scourge" has passed into a stock phrase of a Christian language. Christ was a manly reformer. as was every other redeemer of humanity. He was aggressive. Is not Mahatma Gandhi aggressive? In their own sphere non-violent non-co-operators are vio-

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lent, as they say violent things, if what is unpleasant may be regarded as violent. In what other sense is the Arya Samaj "preaching aggressive Hinduism, and practising evils incidental to a proselytising cult?" Non-violence carried to its logical exreme may be another name for inertia. To live, you have to stir, and to stir is to aggress. Physical aggression, encroachment on the rights of another is no doubt an evil, a crime, a sin. It is the first duty of a citizen to be non-violent in this respect. Regarded from this point of view the history of the Arya Samaj is a history of consistent and continued non-violence. Higher, however, than this duty is another that a neighbour owes to another neighbour, a fellow citizen to a fellow citizen. a fellow human being, to a fellow human being, viz. to teach him morality, and to give him a right conception of duty, of truth, of existence, of God and man. Once you admit the existence of wrong, social wrong, communal wrong, or national wrong, it becomes your duty to raise your voice against it. You strive by all rightful means to eradicate the evil, and if by so doing you wound the feelings of another, you are doing the work simply of a doctor, who if he spares his lancet, spoils his patient. For some, proselytisation has a bad odour. Even so might the campaign carried on by non-co-operation with a Satanic Government have the same nauseating smell. Did not Mahatma Gandhi seek an interview with Dr. Tagore, with a view to win him to his views. The attempt was unsuccessful, but viewed as *Janmabhumi* views the propaganda work of the Arya Samaj, it was nothing but an unsuccesful attempt at prosleytisation. Is prosleytisation an evil? *Janmabhumi* emphasises, perhaps too much, "the evils incidental to proselytisation." Every movement, however good and unobjectionable its aims may be, stands the chance of being abused. There are religions, Christianity and Islam for instance, and Budhism, too, in its time of spiritual decay, that have used force and power as the instruments for proselytisation. In their blind eagerness to add to their following, these religions have sometimes lost sight of their spiritual mission. Professing and preaching morality of a high order they have been guilty of the grossest immoralities. Thus has the name of religion been tarnished, thus has the face of morality been disfigured. Will you, therefore. taboo all religion, or for the matter of that, even its honest and rightful attempts to propagate its faith? Governments, too, as carried on at the present day, are an Augean Stable of corruption and abuse. Taboo therefore all government, as evils are incidental to it. The Arya Samaj has not a very long career at its back. It has only a short history of about fifty years. As to how it will conduct itself in future, we can give no guarantee. If it disfigures its sacred character, as so many churches have already done, it will deserve any the strongest condemnation. We shall be the first to wish for its fall and ruin. A pure church will raise itself on its ashes. Its past, however, a very brief past though, is before us, and of its present we have an immediate perception by means of our own senses, and we are sure that in its proselytisation campaign it has,

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"practised" not even one of the "evils incidental to proselytising cults," Of these we have given an inkling. In case the Editor of *Janmabhumi* has some other 'evils' in his mind let us first hear him, and then proceed to an answer. The Arya Samaj has no lands, no property, no jobs, no government influence, with which to buy off the fidelity of the non-Aryas. For some time the very name 'Arya' has been a synonym of disaster and death. A Hindu parent having seven children of whom one would have turned 'Arya' would say he had six children left, as if the seventh were as good as dead. The Arya Samaj has no superabundant stock of girls too, so as to use female charm to seduct the faith of a non-Arya. 'What evils' then, has the Arya Samaj been 'practising' so as to deserve severe castigation at the hands of *Janmabhumi*. 'It preaches aggressive Hinduism.' Yes, it does. It condemns idolatory, and if the adoration of tombs practised by a section of Mohammdans, comes in for its due share of condemnation, it will not spare the latter, for fear it may estrange them and edanger Hindu-Muslim Unity. A Brahmo Samajist the other day pointed out to us that the social programme of the Arya Samaj was the same as the Brahmo Samaj had adopted before it and that on this score, at least, the Arya Samaj could claim no originality. We said, we were never original. Every item of our social, religious, metaphysical, and spiritual programme had already been there. The Arya Samaj was simply an attempt to carry it out. The Brahmo Samaj had been in the feild many many years before the Arya Samaj took its birth. Even in the Punjab the Brahmos had a start of so many years. Yet the Arya Samaj had succeeded while the Brahmos stand where they had started. It fell to the Arya Samaj to carry out the Brahmo social programme. Why ? The Arya Samaj was aggressive. It knocked at the door of corruption. It did not wait like so many timid philosophers and armed-chair politicians to dream and scheme and fumble and pray. It stirred and that was aggression. It was that aggression that has purged the Punjab of so many curses of misguided Hinduism. The aggression of the Arya Samaj is directed against evils, not against persons. The moment you note this distinction, the fact of aggression ceases to have the evil smell that nauseates you.

'The Malkana Rajput,' says the *Janmabhumi*, 'is a connecting link between the Hindu and the Muslim, with the culture and the customs of the former and the faith and the profession of the latter.' So he is to a closeted politician who will not stir out of his closet for fear of sunshine. Let the Editor of *Janmabhumi* go to the field of the rapproachment activities in Agra and Mathura, and study the state of things himself. 'The faith and the profession of the latter (Muslim)' the Malkana has not. Somehow he has been dubbed Muslim, and despises the designation to-day. Muslim he will never be. Centuries of Hindu ostracism have not been able to make him like Islam. Where then should he shelter himself ? Let him be Indian first, but next he has got to be Hindu or Muslim, else he will not be even

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Indian. National amenities can be enjoyed only in conjunction with social amenities, and for the latter one must belong to some community. What the Hindus are practising in Agra and Mathura is not aggression? Proselytisation it surely is not. There is a section of the Indian populace that is not enjoying its amenities as Indians, simply because it is, 'a connecting link between the Hindus and the Moslems.' Muslim it is not for it *will* not be. Hindu it is but it is not recognised as such. Deprived of its rights, it cannot be urged to its duties as Indian. In the citadel of Indian nationality, it is a vulnerable point, as are the untouchables. Recognition on the part of the Hindus that the Malkanas are the flesh of their flesh and the blood of their blood is strengthening Indian nationality, which all Indians, whether Hindu or Mohammedan, should hail.

It is an irony of fate that true proselytisation which the Arya Samaj has been carrying on since the day of its birth has never been objected to, either by Mohammedans or by nationalists, while what is a move for simply consolidation within the Hindu fold, which should naturally tend to consolidate Indian nationality, has come in for dire abuse and condemnation.

'Moslems' says *Janmabhumi* 'are our junior brothers, let them claim the first choice, in the division of the spoil under the bureaucratic rule.' This surely is the way to further spoil children that are already spoilt. Hinduism has tried the method long enough, and to its abundant enlightenment, found it fail. A few days ago, in the presence of the Indian leaders, both Hindu and Mohammadan, the Hindus of the Punjab were all give and the Mohammedans were all take. Only the bargain, it was said, should be struck by the leaders. Even this the Mohammadens would not concede. The tactics of the *Janmabhumi* are sycophancy, which, we have yet to learn, is a part of statesmanship.

THE LANGUAGE OF ISLAM IN INDIA.

Sir Abdul Rahim, presiding at the Calcutta Madrassa anniversary, exhorted his Mohammadan brethren never to neglect the study of Urdu. He said :—

> I can concieve of no worse calamity befalling the cause of Islamic culture in Bengal than the disappearance of Urdu from our schools. For, Urdu is the language of Islam in India. Without it the Musalmans of Bengal will have little chance of knowing much if anything about their religion, their history and their tradition. Moreover they would be insolated from the rest of their coreligionists and from the movement of Islasmic thought in India.

This no doubt is a strue characterisation of Urdu. It is the language of Islam, Not that only Mohammedans employ it. Others employ it too, but the dominant writers of this language are Mohammedans, who naturally steep their writings in the spirit of Islam. The Hindu who writes in this language has perforce to take his cue as regards idiom and usage from Mohammadens. In every language there are stock phrases which are a verbal expression of the community's, convensions. Mythology is a rich mine of inspiration on which the poets draw. The Hindu student as he studies Urdu, becomes acquainted with Mohammaden myths, without any

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special study of them, while of Hindu legends he remains ignorant. For the Hindu to live in the traditions of his forefathers, it is necessary to read the language of Hinduism, viz., Arya Bhasha. Language is the reflection of the soul of a nation. The Hindu by adopting Urdu as the language of his primary concerns unconsciously makes himself half Mohammaden. For whether you will it or not, you live in the spirit of the community in whose language you carry on your transactions of life.

AMRITSAR AND MULTAN

First Amritsar, and then Multan, the latter now a second time, has witnessed a Hindu Mohammedan riot in the last few days. The offensive has in all these struggles been taken by the Mohammedans. Tales have been invented of Hindu aggression, but like all invented tales these contain evidence of their fabrication in themselves. In every falsehood the link of continuity is somewhere missing: that makes the tale improbable. What has incensed us most is the vicious attempt on the part of a section of Mohammedans to attack the female honour of Hindu ladies. In both Amritsar and Multan, the skirmish began from the molestation of a Hindu girl. Her guardians protesting against this wanton insult, the Mohammedans of that locality made that protest a Mohammedan cause against the Hindus of the city. As far as we have read the scriptures of both the Hindu and Mohammedan religions, female honour is, in both of them, enjoined to be immune, even in the midst of an internecine war. Among Hindus it is thought mean to make violence against female honour a prize or spoil of war. Of Mohammedan history we have read very little, but we are sure, it, too, must be replete with instances that point to the same conclusion. An injunction of the Prophet, we know, which explicitly declares female honour as sacrosanct. We own there are vicious characters in both the communities and adultery is not the particular vice either of Hinduism or of Islam. What we rue in the present case is that instead of showing unmitigated respect to female honour, no matter whether it was Hindu or Mohammedan, one of the communities has included injury to its opponents on this score among its tactics of war. The hooligan who had laid his violent hand on a Hindu girl had insulted Islam more than Hinduism. For Hinduism he did not profess, and Islam was his creed. Mohammedans may have been true to their Mohammedan creed, if in common with the parent of the girl they had made it a cause of Islam to admonish the unmannerly ruffian. By pitting themselves against the protesting Hindu they have injured the cause of Islam more than what injury, great or small, they have done to their opponents.

In other places too, we hear, the tension of feeling is high. It is not only in India that men of different creeds are living as neighbours. It is flouting nature that neighbours should be at loggerheads with each other. We know this state of things can not continue. Quarrels are an exhausting game,; and the parties should sooner or later lose breath and settle down. The Hindus have, to their abundant edification, discovered after all, that peacefulness, carried beyond its reasonable limits, is an invitation

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to war. As long as one party is inebriated with a consciousness of excessive strength, and the other remains secure under a false sense of inaggressiveness, quarrels must now and then break out. Weakness is a sin. 'Keep your powder dry,' is a very sensible advice of a British statesman. Make no unnecessary parade of your power, but when the rainy day comes, woe be to thee, if thou be found unprepared against it. We advise both the parties to stop hostilities. For both it is a losing game. It is gambling, at best, the winnings of which go to the state treasury. Our voice, we know, is feeble, as the voice of even greater men than we, has, ere this, been found to be. Unless the parties themselves are tired of administering no less than receiving buffets, their inner conscience which alone, in such cases, is the most powerful mentor, will not be aroused to register its powerful verdict in favour of civic peace. The balance will be stable only when the scales are even.

Nationalism has, in the meantime, suffered a serious set-back. To the enemies of India, this sad state of things has afforded an hour of inner glee. They smile, they giggle, and sometimes burst out into laughter. With them Hindu-Muslim unity is a by word. Ah the agony of having to submit to a harangue on unity from the lips of a foe, who a few days back was striving to make that same bond snap! Belligerent parties, actually engaged in fighting have, however, no time to take note of the attitudes of freinds and foes. We know the present is a temporary phase in the mentality of India, or for that matter of the Punjab. The hostilities are bound to die down. Their breath is short. No third party can fan the flames to an infinite length of time. Then will this weakness prove our strength. When the Hindu as well as the Mohammedan has found out that he has a strong neighbour, who as a friend, is a source of strength and security while as an enemy, he is a cause of disaster, each will respect the other, and both will, hand in hand, march forth in their common fight against the common foe of their motherland. The sooner the day comes, the better.

MISS ELLIS KIDNAPPED AND RECOVERED.

The story of the kidnapping and then of the recovery of Miss Molly Ellis is now a matter of common knowledge among the newspaper-reading public. We need not describe the incident in details, now that the rescuers have been awarded their guerdon. The incident has elicited diverse comments from diverse quarters. Thus the *Daily Express* of London, while referring to the award of Kaisar-i-Hind Gold Medal to Mrs. Star:—

> " The award must serve as a reminder throughout the Indian empire that, for the sanctity of one white woman, the whole machinery of Government will be put into action if necessary.

We wish the word 'white' were omitted before 'woman.' The machinery of Government maintained at the expense of the Indian Taxpayer should be designed to safeguard the sanctity of Indian women, as much as,if not more than, that of their European sisters. As regards the threat conveyed in the remark of the *Daily Herald*

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the *Tribune*, Lahore, rightly observes :—

"Need we say that the threat was altogether unnecessary. Indians have not yet forgotten Amritsar and the Mrs. Sherwood incident, which was exaggerated beyond all proportion. But when an Indian officer has just played such a conspicuous part in the rescue of a white girl, Moghul Baz Khan's countrymen could well have been spared this reminder at this particular moment. Truly ingratitude is the blackest of sins.

Janmabhumi, however, delivers itself in a different strain. Says our non-violent contemporary :—

The kidnapping of the young girl—Miss Ellis, is a real tragedy. Much as we deplore the foul murder of her mother, of the two European officers recently and of Col. and Mrs. Foulkes two years ago, the story of a child abducted by force is more tragic in its distress than even the story of loss of life. And it looks as though the British are at last becoming alive to the realities of the situation. Nothing should be done, it is urged, to jeopardise the chances of recovering Miss. Ellis. Quite so. But it is also urged that the time for punitive measures is later. We say there is no time at all for punitive measures for there must be an end to vendetta, or call it retribution or even just punishment. The fact is that we are going in a vicious circle. Frontier troubles, the punishment of the Afridis, the murder of Col. and Mrs. Foulkes, one Afridi hanged and more men under trial, heavy fines, expulsion, surrender of titles, then the murder of two officers, vigorous search of the girgas for culprits, and then the murder of Mrs. Ellis and the kidnapping of her fifteen years old daughter ! Where is this to end ? Not even a shower of bombs let fall upon the Khels is likely to bring them to their senses. They are a barbarous and brutal tribe and their only pursuit is vengeance. But it is for the civilized nations to bring this vicious circle to an end. Between the civilized man and the brute, it is only the former that can forget and forgive.

This is non-violence carried to its extreme. To guard the sanctity of women has been the special concern of Indian culture. Once Khwaja Kamal-ud-din objected to the war waged by Rama with Rawan on the score simply of his wife having been kidnapped by the latter. Whether this was the only cause of the war of Ramayana, this is not the occasion to discuss. The Khwaja must be aware, if he has read Indian history that in India even sceptres and balls, and crowns and kingdoms, have served as pawns in the game to guard female sanctity. The throne of Chittore was cast into the flames of the funeral pyre, on which the immortal Padmini, the Royal Consort of Bhimsen flung herself to escape the lustful gaze of Ala-ud-din. We wish those good old traditions were revived to-day not in the case simply of white women, but of all women, no matter what their creed, colour, or caste is. On female sanctity depends the sanctity of all human generations to come. Humanity should bless itself thirce, if it were to make it a mission of its future activities to make female sanctity scrupulously sacrosanct.

HAVE THEY PROVED TRUE TO THEIR SALT ?

Lord Reading, they say, has eaten the salt of India, and what else could he have taxed but his salt? He has, they say, not proved true to his salt. Who else has? Have the Executive Councillors, Hon. members of the Council of State, Hon. Members of the Assembly? The efficacy of salt in ensuring the loyalty of a person is no more

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noted among its properties in modern Materia Medicas. The moderns say, it is a fib of ancients.

U. P. MINISTERS' RESIGNATIONS

Either the U. P. Ministers are made of a more erascible stuff or Sir William Marris is more of an autocrat than are their, or his, compeers in other provinces. The ministers have resigned their jobs, and the Governor has accepted their resignations. The U. P. Government, remarks the *Leader*, which probably is in the know of things, has long since presenting the spectacle of not 'a happy family.' The immediate cause of disruption is what the Education Minister regards an insult to him, in that Sir De la Fosse, a subordinate of his, has been allowed to lodge a suit against certain officers of the University without asking the permisson of the Local Government. The Governor, fiirst in disagreement with the Education Minister, found later his way to accept his view and advised Sir Fosse to apply for sanction. The suit had in the meantime been instituted, and the Minister was of opinion that Sir Fosse should apply for a postponement of its hearing, and an attempt be made to arrive at a settlement if possible, out of court. To this the Governor could not find his way to agree. The minister thought that his position as head of the department would be compomised if the line of procedure adopted by Sir Fosse instead of being objected to as a serious contravention of Government Service Rules, were simply asked to be dittoed by a *ex-post facto* sanction. He has therefore, thrown up his job. The other minister has followed suit. This no doubt was the only course of action open to a self-respecting member of Government. A most gratifying feature of the situation is that the ministerial half of Government has acted in concert. What was involved in the whole affair was a question of principle. It was no matter of mere personal affront. The slight offered was to a minister, not to Mr. C. Y. Chintamani.

THE AGE OF THE EARTH.

The following summary of the various estimates formed till now, of the age of the earth, appears in the *Scientific American*. It will be seen that the latest estimate formed, coincides with the computation arrived at by the Aryan seers, which is about 2,000 millions. The latter is exact. No scientific experiment could have arrived at so precise a figure. The Arya *rishis* appear to have kept a record of years since the time of creation.

Just as there is no definite limit to human ingenuity, so there is none to the different ways in which the approximate age of the world may be estimated. Nor is there any to the degree of divergence which may be found between estimates made, by two different scientists in substantially the same way. The necessary assumptions are so broad, the uncertainty so great as to how much faster or slower physical processes may have run millions of years ago than now, that no calculation of the earth's age can be more than an intelligent guess. Indeed, many of the calculators emphasize this by giving upper and lower limits which are often very far apart.

Regardless of just how much numerical precision may attach to any given estimate, it is fair to say that all estimates make the earth millions of years old. It is again fair to say that all of them are interesting, alike for the method employed and for the result attained. [illegible] have permitted Mr. Hilker to se[illegible]

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down the accompanying summary of the eminent scientists who have attacked the problem, the methods of attack which they have employed, and the results which they have attained. In the bargain, we summarize here some of the more significant estimates that have been made.

Date	Name	Method	Maximum in Millions of Years	Minimum of Years
1862	Kelvin	Temperature	400	20
1897	Kelvin	Temperature and Tides	40	20
1895	Poulton	Biological	400	400
1860	Phillips	Sedimentation	96	38
1899	Geike	Sedimentation	400	100
1902	Sollas	Sedimentation	80	34
1899	Joly	Salt in Ocean	100	80
1909	Sollas	Salt in Ocean	150	80
1910—15	Becker	Salt in Ocean	100	50
1921	Russell	Radio-activity	8,000	1,000

When contemplating the earth in its relation to time, we might consider its birth as coincident with the first accretion or in-falling of particles from the planetesimal nebula. But this first nucleus was not a planet nor can it be considered as such until all or nearly all of the nebulous material had concentrated into a single whole (Saturn is here excepted as an unusual condition.) During this process of accretion, an enormous amount of heat was generated by the gravitational pull on the outer surface which resulted in local liquefaction of the rock mass and its consequent outpouring in the form of vast lava flows.

Up to this time the earth was in the embryonic or formative state. Therefore let us consider its birth as the time at which the lava flows cooled to a sufficiently low temperature to allow the surrounding envelope of vapour to condense and fall upon the earth more or less as what we know as rain.

The question of age then, in the sense we shall use it, may be approached from three distinct angles. The physical angle takes into consideration the rate of cooling internal heat due to pressure, tidal stability, and the disintegration of certain rock-forming minerals. The biological angle has to do with the evolution of living forms while geologically the evidence is taken directly from that earth itself—its structure, the stratification of the rocks, and the deposition of the sediments.

In 1872 Lord Kelvin applying, Fourier's theory of thermal conductivity, came to the conclusion that superficial consolidation must have occurred not less than 20,000,000 years ago otherwise the underground heat would be far greater than it really is. Furthermore, he believed that had the earth solidified more than 400,000,000 years ago, little increase in temperature would now be noted as the centre is approached. With these two figures as extremes and giving the lesser somewhat the benefit of the doubt, he took 9,80,00,000 years as a mean, giving this as the age of the earth. Later, King and Barus pointed out that owing to the friction of the tidal wave, the rotation of the earth is retarded and therefore slower now, than in the earth's infancy. Influenced by these calculations, Kelvin in 1897 reduced the greater figure of this estimate to 40,000.000 years.

The discovery of radium in 1896 by Mme. Curie and the subsequent work of Becquerel, Rutherford, Strutt, and others in radioactivity threw a new light upon the working of natural forces. This led to an attempt at calculating the age of certain rocks and minerals by their helium content. Now it is well known that radium is a disintegration product of uranium, brought about by the radiation of a particles. During this decay, uranium changes to radium with uraniumx and ionium as intermediate products, and thence through radium A. B. C. D. E. F. and to radium G. This last is radio lead and differs from ordinary lead only in its atomic weight which is less. As each of these changes is accomplished by expelling one or more particles and as an

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particle is an atom of helium, it will readily be seen that the sum of the helium and the degradation product contained in any rock or mineral will be the original amount of the parent element uranium. Given then these two factors and the rate of generation of helium which is fairly well known the age of the rock is easily calculated. Taking this method, Rutherford found the age of a certain fergusonite to be something over rate of decay from uranium, changed this estimate to 241,000,000 years. In the same way, Strutt found the age of Ceylon thorianite to be 280,000,000 years. He also placed the age of hematites from Carboniferous and the Eocene at 150,000,000 and 8,000,000 years respectively, while he gave a figure of 225,000 years for certain phosphate modules. The figures arrived at by this method of calculation seem to follow approximately the geological order, the larger figures being given for the older formations. Large as these figures may seem, however, the ages given for some minerals are still more startling, as for instance fergusonite at 10,350,000,000 years and yttrialite 11,470,000,000 years. It may be said further that these figures are believed to be minima, as some helium may have escaped. In the *Scientific American* for June 4, 1921, Russell presents perhaps the most careful collation of all this material that has been made, and concludes that the earth is somewhere between one and eight billion years old.

The biological angle of our problem is by far the most narrow, yet a certain amount of attention must be given it in order to appreciate the vast changes that have been wrought in life forms during the past ages. When we compare the single-celled ameba with the delicately constructed and brilliantly coloured sea-anemone, we are appalled by the thought of the time it must, of necessity, have taken for the latter to evolve from a shapeless bit of protoplasm similar to the former. How then may we look upon man without feeling the significance of this factor? The high degree of specialization that had been reached by the invertebrates in the pre-Cambrian life-period was noted by Charles Darwin as early as 1859, and he demanded an enormous period of time to bring about this change. In 1859 Thomas Huxley also asked for a very long pre-Cambrian life-period, and this demand was renewed in 1895, when Poulton, in computing the earth's age from a biological point of view, even considered Lord Kelvin's original maximum fingure of 400,000,000 years none too long; while G. H. Darwin went so far as to ask that this is multiplied by a number from 15 to 20. It would seem, however, that some of these figures are unnecessarily large.

Turning now to geology, we must look to the earrh itself for an answer. For it is in the massive layers of rock that form the lithosphere that we may find the record of the past. When the earth had sufficiently clooed to retain the water which condensed above and fell upon it streams formed and began to flow. Here then was the beginning of erosion, the wearing away of the land by the water and carrying of material from the high land to deposit it in the valleys beyond. Here, too, was the beginning of the ocean. As time passed, the accumulation of sediment upon the ocean floor grew to a great depth. The chemical action of the minerals in solution aided by the enormous pressure of its own volume. solidified the sediment and result was rock. Then came a catastrophe. The warping of the earth's crust caused upheavals of the land In some places the floor of the ocean was lifted high above the former water level, while parts of the land down-wapped into great declivities. or synclines. it must be understood, however that these chang is did not take place in a short time. On the contraty, the, were of age-long duration. Meanwhilo erosion kept up its work The newly born vallyas became the ocoan and in land seas, while the one time ocean bed ,was caraied away by the wind and

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the water to be redeposited in other places. Thus, we see that the land of to-day was sea of yesterday and what is to-day the sea may sometime become dry land.

Each stratum of rock, therefore, was at one time deposited from a body of water, and its relative thickness is an index to the length of time consumed in the process. Here and there we find a stratum that has not been deposited in this manner, but as these are mostly igneous intrusions and lava flows with more or less volcanic dust and loses deposits, they have little bearing on the problem at hand. We must keep in mind, too, that any stratum of rock we measure is only the part of the original mass which has not been eroded away. Great erosion, however, is usually indicated by a marked non-conformity to the rock above, either in the character of the rock itself or in the contained fossils.

Of the primordial rock, the rock formed by the solidification of the original molten magma, we know little. But this lack of knowledge is of no moment here, as our calculations begin only after this rock has become cold. We must therefore turn our attention to the succeeding strata of sedimentary rock, the thickness of which must indicate the time required for their information. It is not necessary to catalogue the various strata with regard to thickness, as this would only tend to entangle a problem already too complex. The first great formation then with which we have to deal is the Archeozoic. Here the Grenville series alone has a thickness of over 94,000 feet. Immediately following this in the geological scale are the early and late Proterozoic suberas, of which there is upward of 37,000 feet each exposed in the rocky Mountain region. The seven periods of the Paleozoic, of which the Cambrian is the oldest, have a varying thickness of from 10,000 to 30,000 feet. while the strata of the succeeding ages are somewhat under these fingures. In all there are 64 miles of sediment resting upon the basement complex. This is equivalent to a layer 2300 feet thick over the entire surface of the earth.

The time required to form a given thickness of rock depends largely upon the rate at which the sediment is brought down by the streams. This rate is by no means constant but is determined by the character of the country through which the various streams flow, by the slope of the land, by the annual rainfall, and numerous other factors. Data compiled by the United States Geological Survey for all rivers emptying into the ocean give the total amount of material carried in solution annualy as 2735,000,000 tons. By deducting from this the percentage of the more soluble salt which are held in solution and converting the remainder into its equivalent volume of solid rock, John Phillips in 1860, placed the age of the earth somewhere between 38,000,000 and 96,000,000 years. Computing the time in this same manner. De Lapparent has given 67,000,000 years and 90,000,000 as a minimum and maximum duration of the pre-Cambrian time and 27,640,000 years as that which followed, while Sollas in 1909 put the extremes at 34,000,000 and 80,000,000 years.

These last considerations, dealing with erosion by chemical denudation and the formation of the ocean, bring us to a second phase of the geological angle. This is the calculation of the age of the ocean, which as already has been seen, must be the same as that of the land. Over two hundred years ago (in 1715) Edmund Halley pointed out that, assuming a primitive fresh water ocean the amount of salt now contained would be an index to its age, could sufficient data be had. As these data were not obtainable until within the past few years it remained for such men as Joly, Sollas, Clark and others to attempt an answer. Roughly, the following are the figures used by them. The total volume of the ocean taken as an average of that given by

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Murray and Karstens is 302,000,000 cubic miles. The weight of sodium in solution is 14,130—12·10 tons with 158.2 7,000 tons added, annually by the rivers. By the use of the formula $\frac{\text{Na in ocean}}{\text{Annual Na in rivers}}$ = age of ocean. J, Joly in 1899 placed the ocean's age at 97,600,000 years. Joly, however, failed to take three important factors into consideration; namely, cyclic salt, salt of human agencies and submarine salt. Cyclic salt is that which is lifted into the air by spray from the waves carried inland by the winds and dropped, later to be returned by the rivers. The value of this is placed at six per cent. The salt of human agencies, that is, mining and chemical industries, is placed at four per cent. while that extracted from the floor of the ocean is about one per cent. By using these factors for correction of Joly's figures, Becker made the equation.

$$\frac{14{,}130 \times 10\text{—}12}{158{,}357 \times 10\text{—}3} = 89{,}222{,}900.$$

A fourth and very important factor working in the opposite direction must also be taken into consideration. Four-fifths of the surface rock of the earth is sedimentary, and each cycle of erosion and redeposite has further leached out its sodium. It is reasonable to suppose then, that as time passed the amount of sodium delivered to the ocean grew less. This is borne out by the fact that while the amount of chlorine in the ocean is greater than that of the other acid radicals just the reverse is true of the combined waters of the rivers. Clark has aptly shown this relation thus: in ocean $Cl > SO_4 > CO_2$ while in river water $CO > SO_4 > Cl$. Taking this extraction for leaching out process into consideration Becker in 1915 placed the age of the ocean and therefore of the earth—at somewhere between 60,000,000 and 100,000,000 years.

Our lack of knowledge concerning the interior of the earth, both as to its chemical composition and its physical state, is one of the most serious obstacles in the way of ascertaining its age. In accepting King's figures for tidal stability Lord Kelvin based his calculations upon the melting point of diabase. Now while we cannot dispute the assumption that diabase forms the basement complex, we know that there is an overlying couch of material, ranging in thickness from 34 miles to 64 miles, which has a melting point much higher. Again, Kelvin was in error when he accepted the temperature gradient of 1 degree Fahrhnheit in 50.6 feet as universal. The work of Koenigsburger, whose data were taken from 26 nearly level inland regions in chemically unaltered rock, showed a variation in gradient from 1 degree Fahrenheit in 42.4 feet to 1 degree Fahrenheit in 60.3 feet. It would appear from all these considerations that Lord Kelvin's maximum figure of forty million years for the apparent geological age of the earth is somewhat low.

Regarding Darwin's and Huxley's demand for a vast amount necessary to bring about the changes in life forms it may be said that this was because they saw evolution in the light of natural selection only. Recent theories of orthogenesis would tend to reduce this time very materially. This fact has been shown by Hugo deVries, who in ten years brought about changes in the evening primrose which through natural selection alone might have required ten-fold that length of time. On the other hand certain animal forms, such as Lingula: have persisted almost without change from the base of the Cambrian onward. The foundation in known fact is weaker in the biological estimate than in any of the others.

Aside from the fact that figures based on radio-activity or the atomic disintegration of uranium are entirely out of accord with those resulting from other methods of computation there are other reasons that lead us to believe them to be in error. Helium does not necessarily occur with uranium. Strutt found it in considerable

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quantities in beryls containing no radio-active parent whatever. Furthermore while helium is plainly seen in the solar spectum, P. G. Nutting failed to discover uranium, thorium or radium even in a 30foot reproduction of it. Helium is present in the nebulae and hotter stars, but so far they have failed to show any trace of the radio-active elements. Again, 17,845 liters of helium are brought to the surface of the earth each year by a spring in Santenay, France. This, if derived from radio-active decay would require 500,000,000 metric tons of pitchblend. G. F. Becker in 1914 brought strong arguments against this method of computation.

A glance at the table above will suffice to show that the only concordant results are in the figures taken from geological data, either by measurement of the sedimentary deposits or by the sodium chloride content of the ocean. While stratigraphy as a means of measuring time is of the highest value, it cannot be regarded as infallible. Certain conditions may have existed when the earth was young which make the most careful of calculations worthless. Moist and arid climates are easily distinguished in the later geological periods by their fossil fauna and flora; but during the ages previous to the carboniferous a eduction of this kind is difficult to say the least, if not impossible. How, then shall we say that the annual sedimentation during the pre-combrian was great or little? To bring the problem of sedimentation down to our own age, we may cite the incident of the peat bog in Germany. According to figures based upon the rate of deposition this bog is 18,000 years old. As a matter of fact, coins were found in the base of it bearing the stamp of Claudius Caesari!

The point of greatest uncertainty in calculations based upon stratigraphical data is the pre-Cambrian.

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